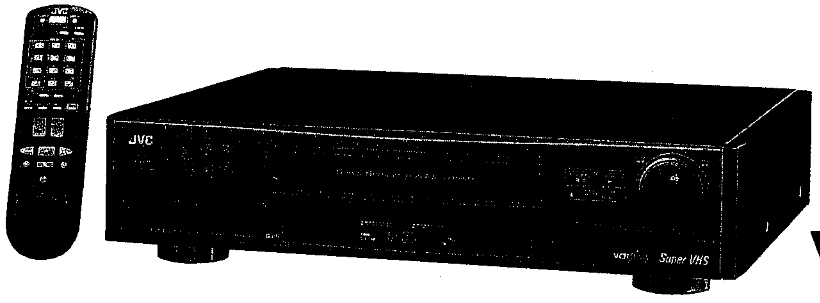
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S4900U/S6900U



S VHS

VCR plus+

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S6900U)*

GENERAL

Power requirement : AC 120 V∿, 60 Hz
Power consumption : 29 W
Temperature
  Operating : 5°C to 40°C (41°F to 104°F)
  Storage : –20°C to 60°C (–4°F to 140°F)
Humidity
  Operating : 35% to 80%
  Storage : 5% to 80%
Operating position : Horizontal only
Dimensions (WxHxD) : 459 x 109 x 387 mm (18-1/8" x 4-5/16" x 15-1/4")
Weight : 6.6 kg (14.6 lbs)
Format : S-VHS/VHS NTSC standard with Hi-Fi audio
Tape width : 12.65 mm
Tape speed (SP) : 33.35 mm/sec (1-5/16 ips)
  (EP) : 11.12 mm/sec (7/16 ips)
Maximum recording time (SP) : 160 min. with T-160 video cassette
  (EP) : 480 min. with T-160 video cassette

VIDEO

Signal system : NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording system : Rotary two-head helical scan system with slant double-azimuth combination video heads
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output : 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio : 45 dB (Rohde & Schwarz noise meter)
Horizontal resolution : 400 lines (S-VHS)
  240 lines (VHS)

AUDIO

Input : –8 dBs, more than 50 k-ohms, unbalanced
Output : –8 dBs, less than 1 k-ohm, unbalanced (100 k-ohms, load)

NORMAL AUDIO

Recording system : Longitudinal track
No. of channels : 1 normal audio channel
Frequency response : 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system : Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of channels : 2 Hi-Fi audio channels
Frequency response : 20 Hz to 20,000 Hz
Dynamic range : More than 90 dB
Wow and flutter : Less than 0.005% WRMS

TUNER

Tuning system : Frequency synthesized tuner
Channel coverage
  (VHF) : Channels 2–13
  (UHF) : Channels 14–69
  (CATV) : 113 Channels
RF output : Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference : Quartz-crystal
Program capacity : 1-year programmable timer/8-programs

ACCESSORIES

Provided accessories : RF cable (F-type),
  Infrared remote control unit,
  "AA" battery x 2,
  S-Video cable (4-pin),
  Video cable,
  Audio cable,
  Mini-plug cable (3.0 m),
  Mini-plug cable (1.5 m),
  Multi-System Cable Box Controller,
  Multi-Brand R.A. EDIT Controller,
  Lithium battery (CR2025) x 2,
  AC power cord

Specifications shown are for SP mode unless otherwise specified.
E. & O. E. Design and specifications subject to change without notice.

No. 82364
July 1993

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The following table lists the differing points between Models (suffixed HR-S6900U and HR-S4900U) in this series.

Model / Item	HR-S6900U	HR-S4900U
SIDE PANEL	○	×
MIC INPUT CONNECTOR	○	×
RA EDIT CONTROL LED	○	× (OPTION)

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

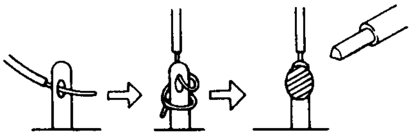


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

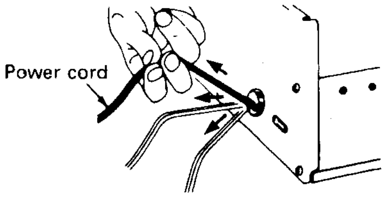


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

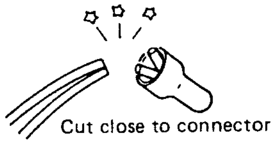


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

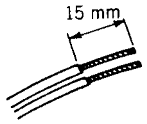


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

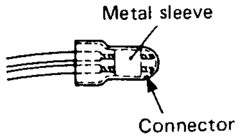


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

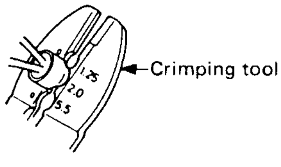


Fig. 6

(5) Check the four points noted in Fig. 7.

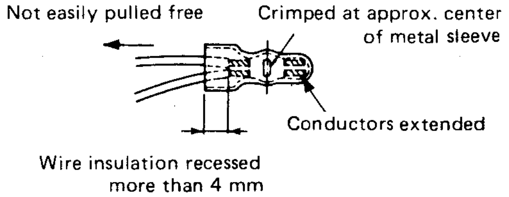

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

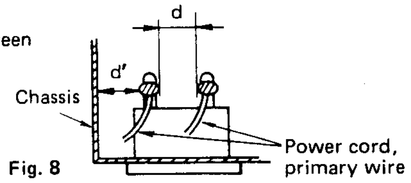


Fig. 8

4. **Leakage current test**
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method: (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

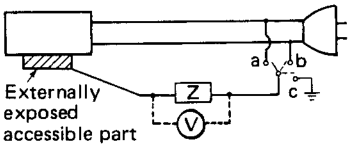


Fig. 9

5. **Grounding (Class I model only)**
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

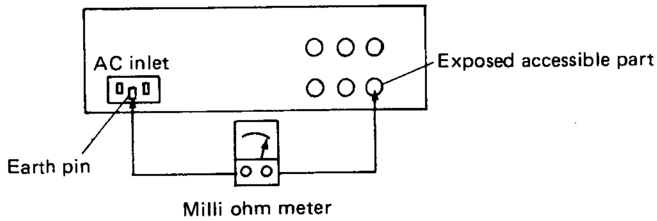


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

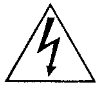
Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

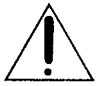
Safety Precautions

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION:

This video cassette recorder should be used with AC 120V∿, 60 Hz only.

To prevent electric shocks and fire hazards, do NOT use any other power source.

Warning on lithium battery

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.

Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

SVHS

- Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

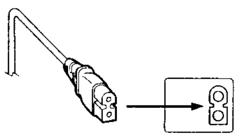
CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

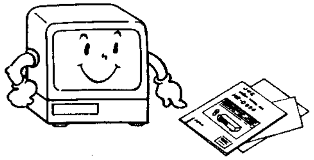
CAUTION:



To avoid electric shock or damage to the unit, first firmly insert the small end of the AC power cord into the VCR until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.

NOTE:

- When you are not using the video recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- The rating plate and the safety caution are on the rear and/or side of the unit.
- Changes or modifications not approved by JVC could void user's authority to operate the equipment.
- Please read the "Precautions" section of this instruction manual and the "Video Products Safety Guide" enclosed with this manual before installing or operating the VCR.
- This instruction manual, and the other reference materials enclosed with it, contain important information on VCR operation and proper usage. Please keep them near your VCR in a place where you can easily access them for reference.



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How To Use This Instruction Manual

This instruction manual has been designed with both new and experienced users in mind. It begins with the introductory sections "Getting To Know Your VCR" and "Using Your Remote Controls", followed by necessary set-up procedures in "Setting Up Your VCR". The next three sections —"Playing A Tape", "Recording On A Tape", and "Timer-Recording With VCR Plus+™" — take you step-by-step through these basic operations of your VCR. This is followed by "Special Features", in which a variety of your VCR's advanced functions are introduced. "If You Have Any Questions" is the section you should refer to if you experience any problems in VCR operation or if you need additional information regarding a feature or terminology. At the end of the book you will find a "Guide Channel List For VCR Plus+™" followed by locations you can contact "For Servicing", and "Warranty" information.

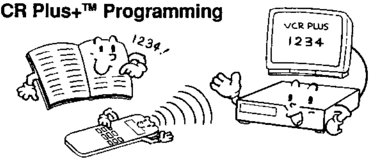
Throughout the book, if you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number.

Unless otherwise specified, operation buttons mentioned in the instructions refer to those located on the remote control, not those duplicated on the VCR.

Remember, you must use your VCR correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC VCR.

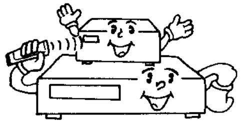
Some of your VCR's features

VCR Plus+™ Programming



Easy timer programming—just punch-in the code number in your TV listing.

Multi-System Cable Box Controller



For automatic switching of your Cable Box's channel during timer-recording.

Family Message

PLEASE CALL
JERRY AFTER 7 PM
10:00 AM 9/22

It's like a built-in electronic bulletin board.

Getting To Know Your VCR

Your VCR's controls and connectors 4

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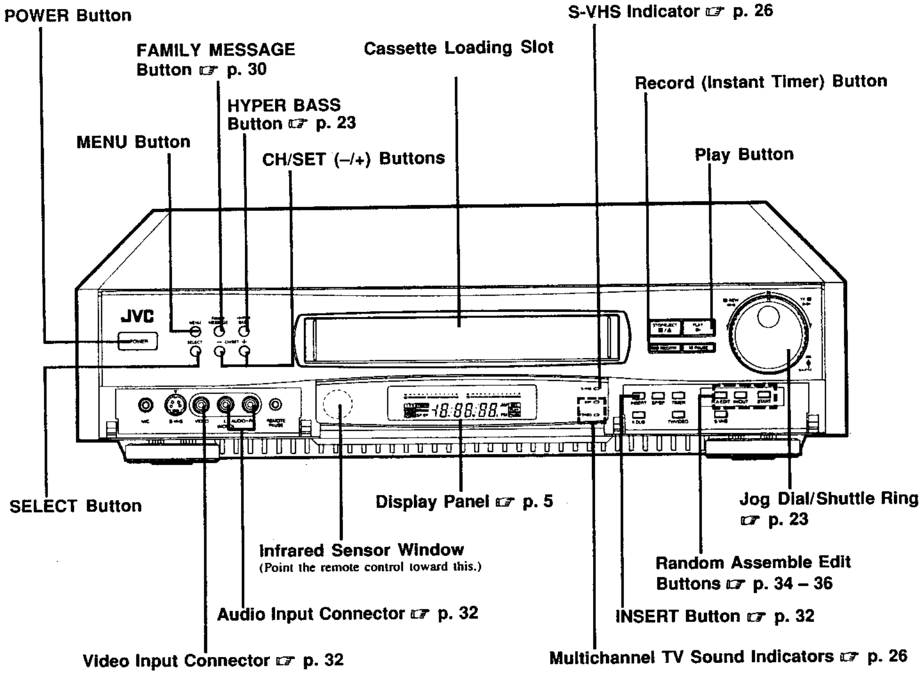
Getting To Know Your VCR

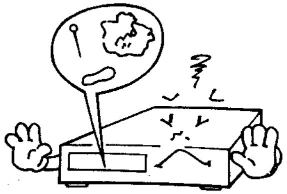
Your VCR's controls and connectors

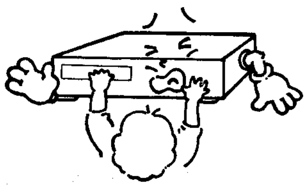
Front Panel


POWER Button
FAMILY MESSAGE Button ☞ p. 30
Cassette Loading Slot
S-VHS Indicator ☞ p. 26
HYPER BASS Button ☞ p. 23
Record (Instant Timer) Button
MENU Button
CH/SET (–/+) Buttons
Play Button
JVC
SELECT Button
Display Panel ☞ p. 5
Jog Dial/Shuttle Ring ☞ p. 23
Infrared Sensor Window
(Point the remote control toward this.)
Random Assemble Edit Buttons ☞ p. 34 – 36
Audio Input Connector ☞ p. 32
INSERT Button ☞ p. 32
Video Input Connector ☞ p. 32
Multichannel TV Sound Indicators ☞ p. 26

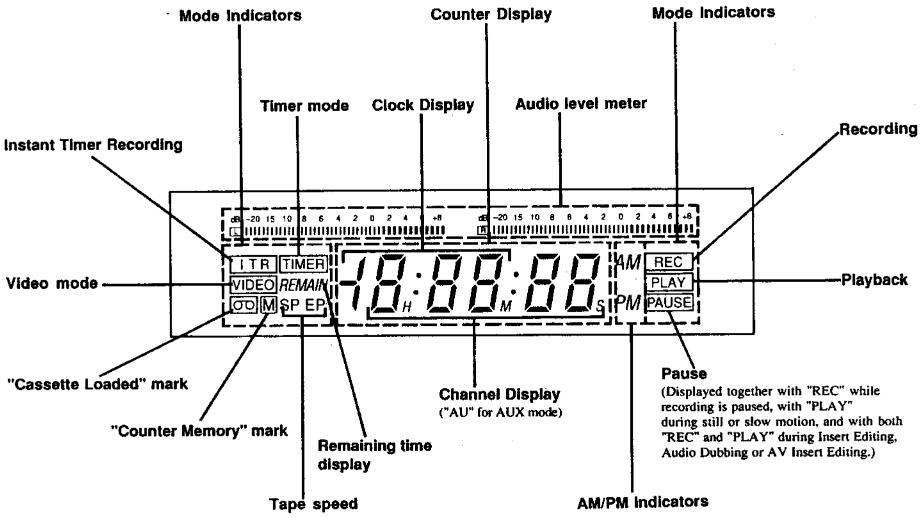
WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started. This could cause injury or damage the mechanism.





Display panel (FDP)

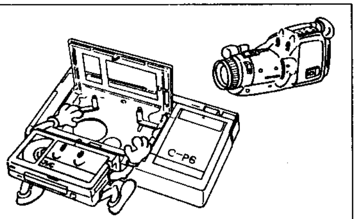

Mode Indicators
Counter Display
Mode Indicators
Timer mode
Clock Display
Audio level meter
Instant Timer Recording
Recording
Video mode
Playback
ITR
TIMER
VIDEO
REMAIN
M
SP EP
18:88:88
H
M
S
AM
PM
REC
PLAY
PAUSE
"Cassette Loaded" mark
Pause
(Displayed together with "REC" while recording is paused, with "PLAY" during still or slow motion, and with both "REC" and "PLAY" during Insert Editing, Audio Dubbing or AV Insert Editing.)
Channel Display
("AU" for AUX mode)
"Counter Memory" mark
Remaining time display
Tape speed
AM/PM Indicators

- Pressing DISPLAY lets you change the type of display: Counter, Channel, Clock or Remain.
- Whenever the VCR is turned off, the FDP's brightness is automatically dimmed.

Usable cassettes

Full-Size VHS
T-30 (ST-30**)
T-60 (ST-60**)
T-90
T-120 (ST-120**)
T-160 (ST-160**)

Compact VHS*
TC-20 (ST-C20**)
TC-30 (ST-C30**)

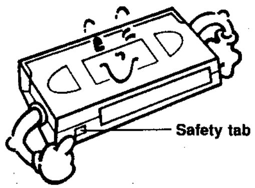


* Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorder cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.

** This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

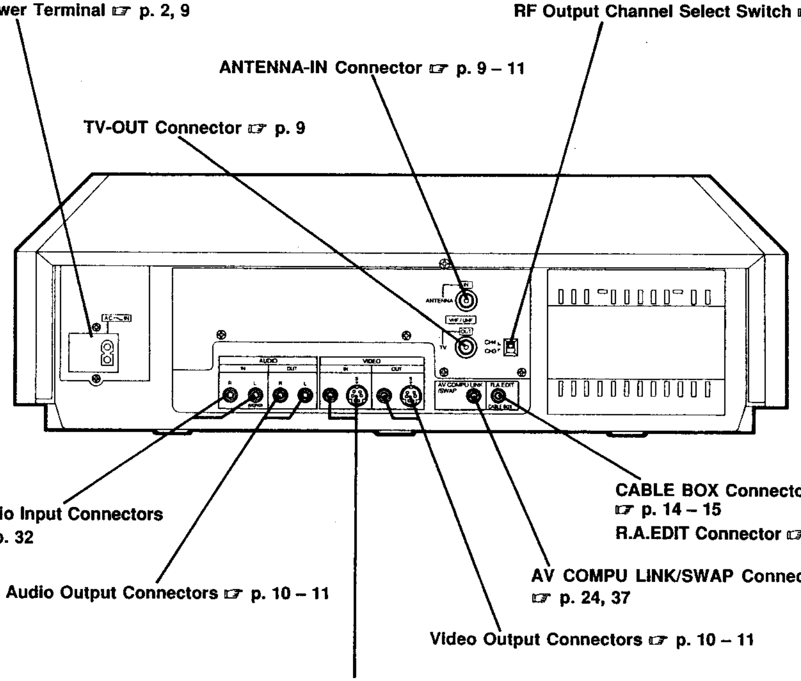
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Getting To Know Your VCR (cont'd)

Back Panel



AC Power Terminal ☞ p. 2, 9

RF Output Channel Select Switch ☞ p. 9

ANTENNA-IN Connector ☞ p. 9 – 11

TV-OUT Connector ☞ p. 9

CABLE BOX Connector ☞ p. 14 – 15

R.A.EDIT Connector ☞ p. 34

Audio Input Connectors ☞ p. 32

AV COMPU LINK/SWAP Connector ☞ p. 24, 37

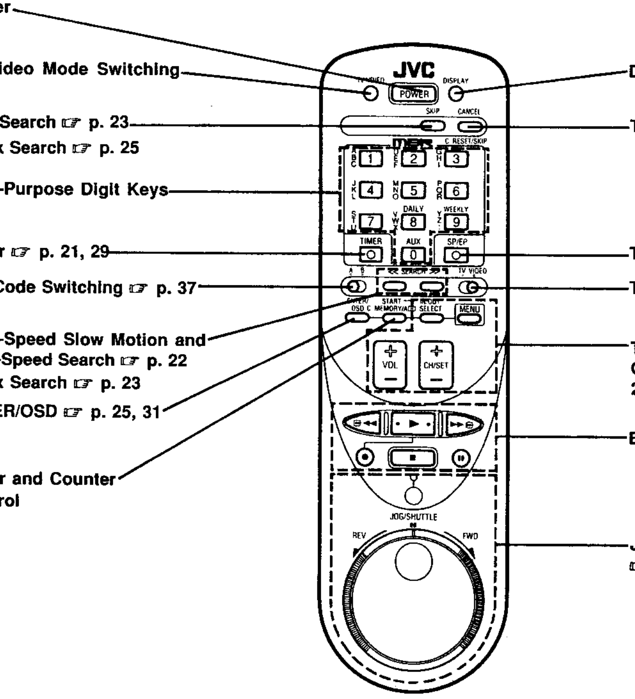
Audio Output Connectors ☞ p. 10 – 11

Video Output Connectors ☞ p. 10 – 11

Video Input Connectors ☞ p. 32

Using Your Remote Controls

Wireless Remote Control



Power

TV/Video Mode Switching

Skip Search ☞ p. 23

Blank Search ☞ p. 25

Multi-Purpose Digit Keys

Timer ☞ p. 21, 29

A/B Code Switching ☞ p. 37

Multi-Speed Slow Motion and High-Speed Search ☞ p. 22

Index Search ☞ p. 23

ENTER/OSD ☞ p. 25, 31

Tuner and Counter Control

Display ☞ p. 31

Tuner and Counter Control

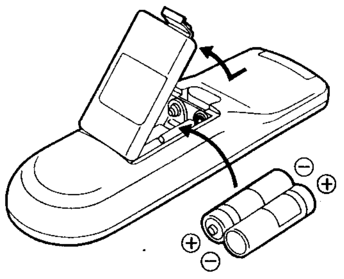
Tape Speed

TV/Video Switching ☞ p. 30

TV and On-Screen Menu Operation ☞ p. 12 – 17, 20 – 21, 24, 26 –29, 32, 37

Basic Functions ☞ p. 18, 19

Jog/Shuttle Control ☞ p. 23



Installing Batteries

1. Slide the battery compartment cover in the direction of the arrow.
2. Insert 2 "AA"-size batteries (provided) in the correct directions.
3. Replace the cover.

How To Use

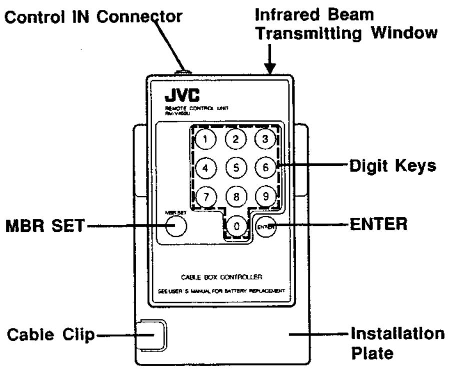
This remote control can operate most of your VCR's functions.

1. Point the remote control toward the VCR's sensor window.
2. Press the appropriate operation button.
   - The maximum operating distance of the remote control is about 8 m (26 ft).

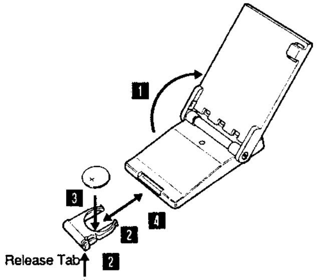
This remote control can also operate TVs of various brands. For instructions, ☞ p. 30.

Using Your Remote Controls (cont'd)

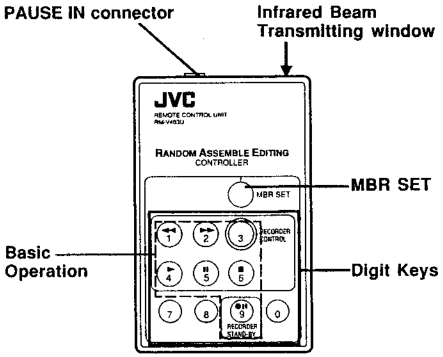
Multi-System Cable Box Controller (☞ p. 14, 15)


Control IN Connector
Infrared Beam Transmitting Window
JVC
Digit Keys
MBR SET
ENTER
Cable Clip
Installation Plate

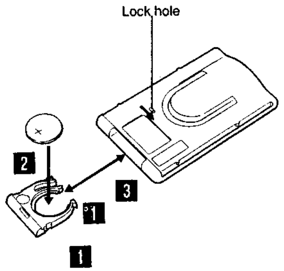
1. Raise the installation plate to access the battery compartment.
2. Pinch the release tab and pull out the battery holder.
3. Insert the lithium battery (CR2025), with its plus (+) side up, into the battery holder.
4. Replace the battery holder until it clicks in place.


1
3
4
2
Release Tab
2

Multi-Brand R.A. Edit Controller (☞ p. 36)


PAUSE IN connector
Infrared Beam Transmitting window
JVC
RANDOM ASSEMBLE EDITING CONTROLLER
MBR SET
Basic Operation
Digit Keys
RECORDER CONTROL
RECORDER STAND-BY

1. Pull out the battery holder while sliding the lock hole.
2. Insert the lithium battery (CR2025), with its plus (+) side up, into the battery holder.
3. Replace the battery holder until it clicks in place.


Lock hole
2
3
1
1

This controller can be used for recorder's basic operations.
How To Use

- While pressing RECORDER CONTROL, press the Basic operation buttons:
  - ◄◄ = Rewind
  - ►► = Fast-Forward
  - ► = Play
  - ❚❚ = Rewind
  - ■ = Stop
- RECORDER STAND-BY button (●❚❚ Record Pause) should be pressed on its own. (Do not press any other button simultaneously.)

Warning on lithium battery

The battery used in the above devices may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

Setting Up Your VCR

Making the right connections

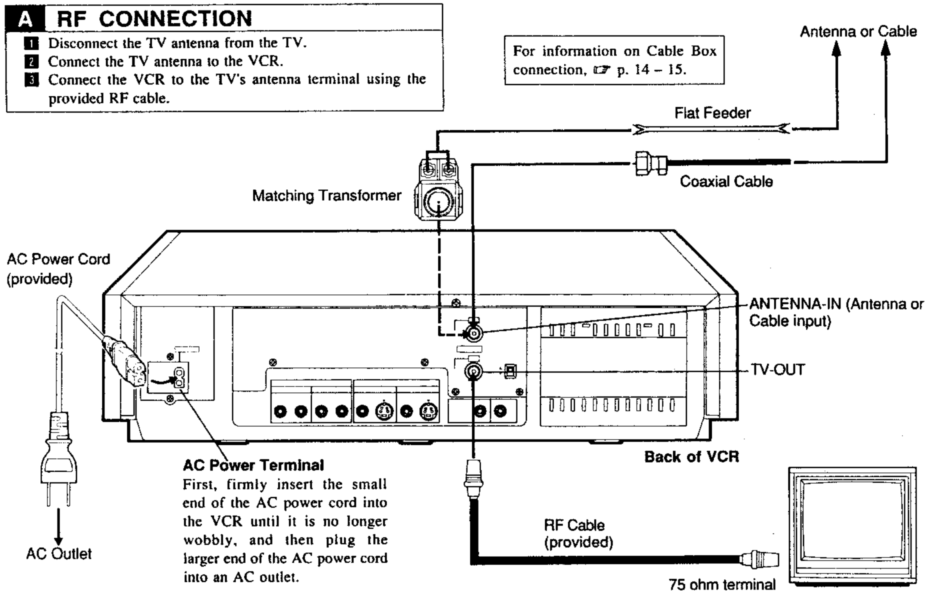
It's essential that your VCR be properly hooked up for proper results. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VCR OPERATION CAN BE PERFORMED.

IF YOU HAVE A STANDARD TV SET

A RF CONNECTION

1. Disconnect the TV antenna from the TV.
2. Connect the TV antenna to the VCR.
3. Connect the VCR to the TV's antenna terminal using the provided RF cable.

For information on Cable Box connection, ☞ p. 14 – 15.


Antenna or Cable
Flat Feeder
Coaxial Cable
Matching Transformer
AC Power Cord (provided)
ANTENNA-IN (Antenna or Cable input)
TV-OUT
Back of VCR
AC Outlet
RF Cable (provided)
75 ohm terminal

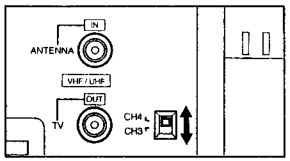
AC Power Terminal
First, firmly insert the small end of the AC power cord into the VCR until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.

See the "Basic Guide For VCR Connections" sheet enclosed with this instruction manual for more information and other possible connections.

B SELECT VCR CHANNEL (3 OR 4)

With a standard RF connection, the VCR sends picture and sound signals through the connecting cable to your TV on channel 3 or 4. The VCR's switch is pre-set to CH3 prior to shipment. Set this switch to CH4 in areas where channel 3 is used for broadcasting.

Back of VCR


IN
ANTENNA
VHF / UHF
OUT
TV
CH4
CH3

NOTE:
To operate the VCR with your TV using an RF connection, it is always necessary to set your TV's channel to the one you set the VCR to in this step.

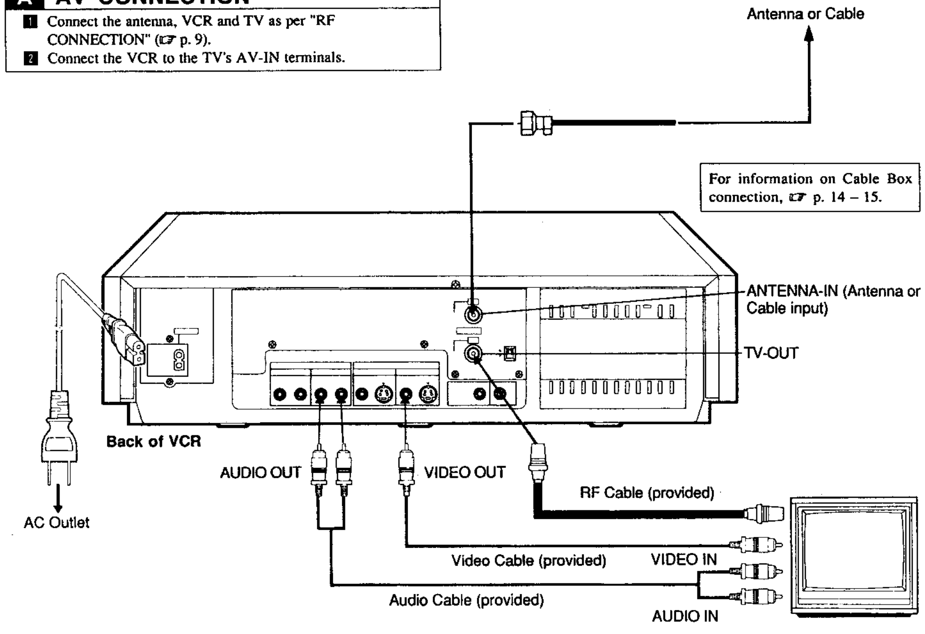
If you use a standard TV, do not set the on-screen RF SW(itch) to OFF because this will stop your VCR from sending signals through the RF Cable to your TV (channel 3 or 4), and the VCR's signals will not be viewable on the TV screen. Leave the on-screen RF Switch setting ON.

Or...

IF YOU HAVE A TV SET WITH AV INPUT CONNECTORS

A AV CONNECTION

1. Connect the antenna, VCR and TV as per "RF CONNECTION" (☞ p. 9).
2. Connect the VCR to the TV's AV-IN terminals.


Antenna or Cable
ANTENNA-IN (Antenna or Cable input)
TV-OUT
Back of VCR
AUDIO OUT
VIDEO OUT
RF Cable (provided)
AC Outlet
Video Cable (provided)
VIDEO IN
Audio Cable (provided)
AUDIO IN

For information on Cable Box connection, ☞ p. 14 – 15.

B ADJUST RF SETTING IF NECESSARY

Even if your TV has AV input connectors, it is necessary to also connect your VCR and TV using the RF cable if you ever wish to watch a program while recording another (☞ p.25).

If you use a TV with AV inputs, you can set the on-screen RF SW(itch) to OFF (☞ p.37). Since the VCR stops sending out RF signals to your TV, you can view channels using the TV's tuner with no interference from the RF connection. Your VCR's signals are sent to your TV through the AV connections, and will be viewable on a special "channel" meant for reception of AV signals (check your TV instruction manual for details).

ATTENTION

This VCR is equipped with a Family Message Auto Demo mode.

When the POWER button is pressed for the first time after the VCR is plugged into an AC outlet, the VCR enters this mode and built-in "Family Messages" will be continuously displayed on the TV screen until any VCR control button is pressed (any button on the VCR, or any button on the remote control while the TV/VIDEO switch is set to VIDEO, except VOL.) ☞p.30.

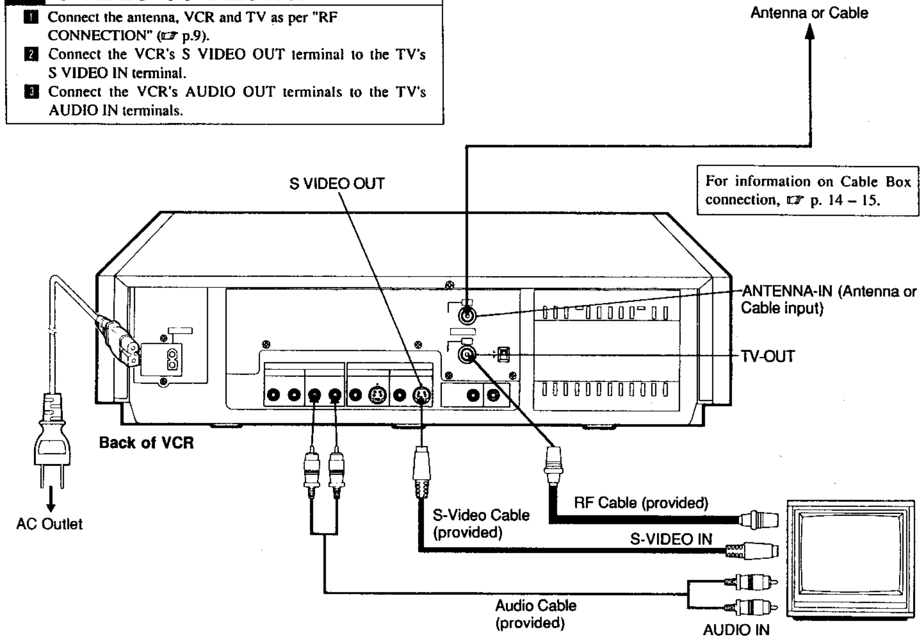
To engage the Auto Demo Mode manually, press the FAMILY MESSAGE button until automatic demo begins.

Or...

IF YOU HAVE A TV SET WITH S-VIDEO INPUT CONNECTORS

A S-VIDEO CONNECTION

1. Connect the antenna, VCR and TV as per "RF CONNECTION" (☞ p.9).
2. Connect the VCR's S VIDEO OUT terminal to the TV's S VIDEO IN terminal.
3. Connect the VCR's AUDIO OUT terminals to the TV's AUDIO IN terminals.


Antenna or Cable
S VIDEO OUT
ANTENNA-IN (Antenna or Cable input)
TV-OUT
Back of VCR
AC Outlet
S-Video Cable (provided)
RF Cable (provided)
S-VIDEO IN
Audio Cable (provided)
AUDIO IN

For information on Cable Box connection, ☞ p. 14 – 15.

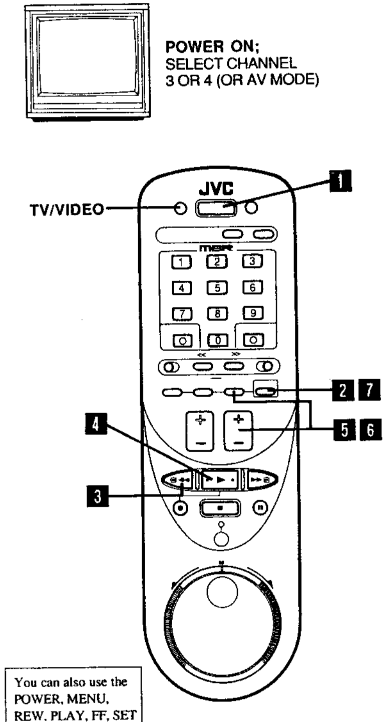
NOTES:

- To make the most of Super VHS picture performance, we recommend you use the S-VIDEO connection.
- To operate the VCR with your TV using the S VIDEO connection, set your TV to the AV mode.

Setting Up Your VCR (cont'd)

Setting your VCR's clock

Since your VCR bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results.



You can also use the POWER, MENU, REW, PLAY, FF, SET and SELECT buttons on the VCR.

A TURN ON THE VCR

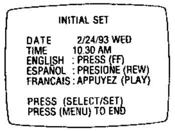
1 Press POWER.
- If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.
- If various "Family Message" displays appear on your TV screen, press any button <u>except</u> VOL, TV or POWER to stop them. (☞p.10, 30.)

B ACCESS THE ON-SCREEN MENU

2 Press MENU.
- The Initial Set screen will appear.

3 To change the on-screen language to Spanish, press ◄◄ (Rewind).

4 To change the on-screen language to French, press ► (Play).
- Press ►► (Fast Forward) to change back to English.

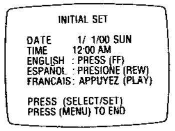


```
        INITIAL SET

DATE       2/24/93 WED
TIME       10 30 AM
ENGLISH   : PRESS (FF)
ESPAÑOL   : PRESIONE (REW)
FRANCAIS : APPUYEZ (PLAY)

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

C INPUT THE MONTH/DAY/YEAR/ TIME

5 Press SET to set the month, and then press SELECT.

6 Repeat step 5 to set the day, year and time (making sure that AM or PM is correct).
- The day of the week will automatically appear.



```
        INITIAL SET

DATE        1/ 1/00 SUN
TIME       12 00 AM
ENGLISH   : PRESS (FF)
ESPAÑOL   : PRESIONE (REW)
FRANCAIS : APPUYEZ (PLAY)

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

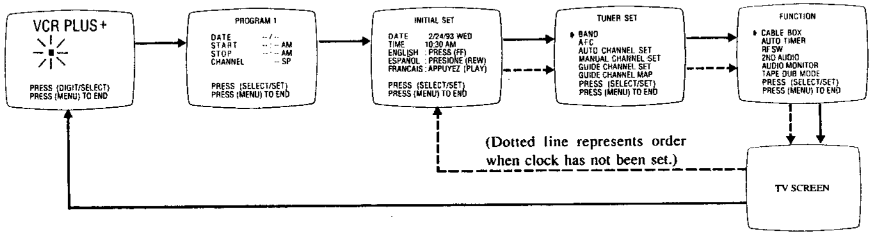
TO MAKE CORRECTIONS

Press SELECT so that the item you want to change blinks. Reset that item. Continue to step D.

D START THE CLOCK

7 Press MENU.
- The day of the week will automatically appear.

After the clock has been set, the on-screen menus will change in the following order when the MENU button is pressed.
When the MENU button on the VCR is pressed, the VCR PLUS menu will not be displayed.



```
VCR PLUS+

PRESS (DIGIT/SELECT)
PRESS (MENU) TO END
```

```
        PROGRAM 1

DATE         --/--
START        --:-- AM
STOP         --:-- AM
CHANNEL         -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

```
        INITIAL SET

DATE       2/24/93 WED
TIME       10:30 AM
ENGLISH   : PRESS (FF)
ESPAÑOL   : PRESIONE (REW)
FRANCAIS : APPUYEZ (PLAY)

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

```
        TUNER SET

♦ BAND
  AFC
  AUTO CHANNEL SET
  MANUAL CHANNEL SET
  GUIDE CHANNEL SET
  GUIDE CHANNEL MAP
  PRESS  (SELECT/SET)
  PRESS (MENU) TO END
```

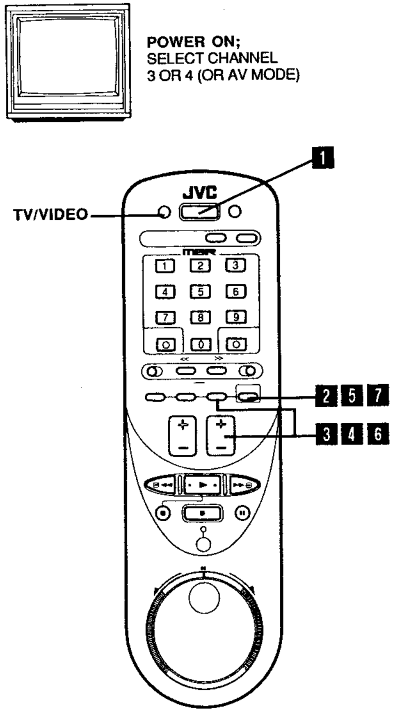
```
        FUNCTION

♦ CABLE BOX
  AUTO TIMER
  RF SW
  2ND AUDIO
  AUDIO MONITOR
  TAPE DUB MODE
  PRESS  (SELECT/SET)
  PRESS (MENU) TO END
```

(Dotted line represents order when clock has not been set.)

FOLLOW INSTRUCTIONS ON THIS PAGE OR ON P. 14 - 15 DEPENDING ON YOUR CABLE BOX.

Setting your VCR's tuner (if you don't use a Cable Box)

Follow these steps **if you do <u>not</u> use an external Cable Box** to receive cable stations. If you use a Cable Box, skip this procedure and ☞ p.14. The Auto Set feature introduced here automatically assigns receivable channels in your area to the CHANNEL UP/DOWN buttons and skips the others so you won't have to go through any "blank" channels to get to the one you want.



You can also use the POWER, MENU, SET and SELECT buttons on the VCR.

If you purchase a Cable Box later on, be sure to follow the instructions on p.14 for proper set-up.

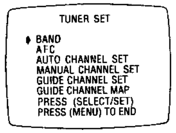
A TURN ON THE VCR

1 Press POWER.
- If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.

B ACCESS THE ON-SCREEN MENU

2 Press MENU until the Tuner Set menu appears.

3 Press SET to move the cursor to "BAND", and then press SELECT.

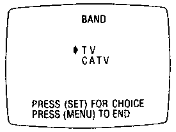


```
        TUNER SET

♦ BAND
  AFC
  AUTO CHANNEL SET
  MANUAL CHANNEL SET
  GUIDE CHANNEL SET
  GUIDE CHANNEL MAP
  PRESS  (SELECT/SET)
  PRESS (MENU) TO END
```

C SELECT THE BAND

4 Press SET to choose "TV" or "CATV".
- The BAND select feature has 2 settings (TV and CATV). Set to TV if your antenna provides only UHF and VHF channels. Set to CATV if your antenna system is a cable TV line.

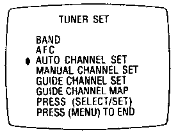
5 Press MENU.



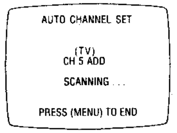
```
        BAND


     ♦ T V
       C A T V



PRESS (SET) FOR CHOICE
PRESS (MENU) TO END
```

D START AUTO SET

6 Press SET to move the cursor to "AUTO CHANNEL SET", and then press SELECT.
- Auto set is in progress and "SCANNING..." is displayed.
- When available channels are scanned, "ADD" will be displayed on the screen.
- When unavailable channels are skipped, "SKIP" will be displayed.
- After completion of auto set, the lowest tuned-in channel and "SCAN COMPLETED" are displayed.
- If "SCAN COMPLETED — NO SIGNAL —" is displayed, check the band setting and connections, and start again. ☞ p.9 – 11.



```
        TUNER SET

  BAND
  AFC
♦ AUTO CHANNEL SET
  MANUAL CHANNEL SET
  GUIDE CHANNEL SET
  GUIDE CHANNEL MAP
  PRESS  (SELECT/SET)
  PRESS (MENU) TO END
```



```
    AUTO CHANNEL SET


         (TV)
       CH 5 ADD

      SCANNING . . .


  PRESS (MENU) TO END
```

E RETURN TO THE TV SCREEN

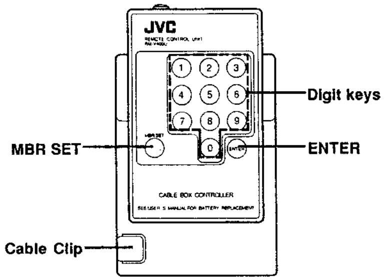
7 Press MENU as many times as necessary.

Now go to ☞ p.16 "Setting-up the VCR Plus+ feature".

Setting Up Your VCR (cont'd)

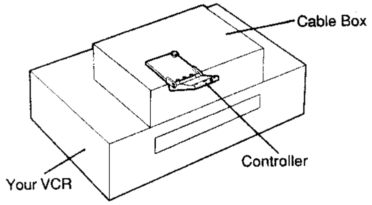
Setting your VCR's tuner and Cable Box Controller

Follow these steps **if you use an external Cable Box** (descrambler) to receive cable stations. When properly set-up, the Multi-System Cable Box Controller will automatically switch channels on your Cable Box so you can timer-record two or more cable TV stations. It works for Cable TV shows that have been programmed using VCR Plus+ (☞ p. 20) or On-Screen (☞ p. 28) programming.

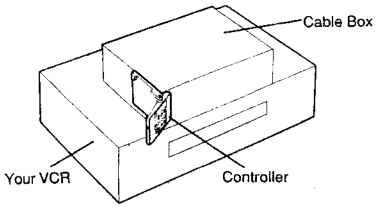


Suggested Locations

Attach to top of Cable Box, point Controller down towards Cable Box's remote sensor window.



Attach to side of Cable Box, point controller in towards Cable Box's remote sensor window.



A SET CABLE BOX BRAND

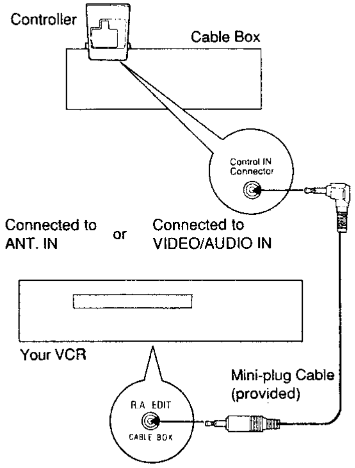
1. Turn on the Cable Box's power.
2. While holding down the MBR SET button, press the Digit keys corresponding to the code number for your Cable Box's brand. (See list below.)
3. Press the Digit keys to see if your Cable Box's channel will change.
   - If the channel doesn't change, try pressing ENTER after the Digit keys.
   - If the brand has more than one code number listed, repeat steps 2–3 until you reach the code that turns on your Cable Box's power.

B PLACE CONTROLLER IN A GOOD LOCATION

4. Find a location for the Controller which offers an unobstructed path to the Cable Box's remote sensor window; otherwise the Controller's infrared beam will not be able to reach and control your Cable Box.
   - Press the Controller's Digit keys to make sure the channel changes.
5. Attach the Controller using the adhesive strips on the installation plate.

CABLE BOX BRAND LIST

BRAND	CODE
ARCHER	52, 53, 54, 85, 86
CABLEVIEW	85, 86
CITIZEN	85, 86
CURTIS	13, 14, 15, 16
DIAMOND	52, 53, 54
EAGLE	30, 31, 32, 33, 34, 35, 36, 37
EASTERN	51
GC BRAND	85, 86
GEMINI	55, 56
GENERAL ELECTRIC	67
GENERAL INSTRUMENTS	1, 2, 3, 4, 5, 6, 101
HAMLIN	23, 24
JERROLD	1, 2, 3, 4, 5, 6, 101
MACOM, HITACHI	57, 58, 59
MAGNAVOX	43, 44, 45, 46, 47, 48, 49
MOVIETIME	71, 72, 73
NSC	71, 72, 73
OAK	17, 18, 19, 20, 21, 22
PANASONIC	25, 26, 27
PHILIPS	38, 39, 40, 41, 42
PIONEER	7, 8
PULSER	85, 86
RCA	25, 26, 27
REGAL	78, 79, 80
REGENCY	51
SAMSUNG	74, 75, 76
SCIENTIFIC ATLANTA	13, 14, 15, 16
SL MARX	74, 75, 76
SPRUCER	25, 26, 27
STARGATE	74, 75, 76, 85, 86
SYLVANIA	70
TEKNIKA	68, 69
TELECAPTION	100
TELEVIEW	74, 75, 76
TEXSCAN	28, 29
TOCOM	62, 63, 64, 65, 66
UNIKA	52, 53, 54, 85, 86
UNIVERSAL	81, 82, 83, 84
VIDEOWAY	9, 10, 11, 12
VID TECH	89
VIDTER	89
VIEWSTAR	30, 31, 32, 33, 34, 35, 36, 37
ZENITH	9, 10, 11, 12



NOTES:

- Although the provided Multi-System Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
- If your cable box does not respond to any of the codes, your VCR is not able to change its channels during timer-recordings. For this type of cable box, always remember to leave it turned on and tuned to the channel you want to record before the timer-recording is programmed to start.
  Please contact your cable company about the possibility of exchanging your current cable box with one that is compatible with the VCR.
- If your cable box cannot be controlled by a remote control, your VCR will not be able to change its channels during timer-recording. For this type of cable box, turn it on and select the channel you want to record before the timer-recording is programmed to start.

C CONNECT CABLE BOX TO VCR

If your Cable Box has VIDEO OUT/AUDIO OUT connectors...

6. Connect them to the VIDEO IN and AUDIO IN connectors of your VCR.

If your Cable Box does not have VIDEO OUT/AUDIO OUT connectors...

6. Connect the Cable Box's antenna output terminal the ANT. IN (Antenna) terminal of your VCR.

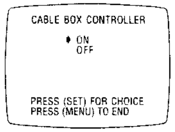
- Refer to the Cable Box's instruction manual for more information.
- Optional cables may be required.

D CONNECT CONTROLLER TO VCR

7. Connect the Cable Box Controller's Control IN connector to your VCR's CABLE BOX terminal using the supplied mini-plug cable.
   - Fasten the mini-plug in place with the installation plate's cable clip.

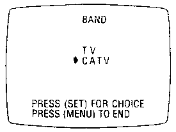
E SET "CABLE BOX CONTROLLER" TO ON

8. Press MENU until the Function menu appears (☞ p.12).
9. Press SET to move the cursor to "CABLE BOX", and then press SELECT.
10. Press SET to choose "ON".
11. Press MENU as many times as necessary to exit.



F START AUTO CHANNEL SET

12. Turn on the Cable Box's power.
13. Press MENU until the Tuner Set menu appears (☞ p.12).
14. Press SET to move the cursor to "BAND", and then press SELECT.
15. Press SET to choose "CATV".
16. Press MENU.
17. Press SET to move the cursor to "AUTO CHANNEL SET", and then press SELECT.
    - If the Cable Box is connected to your VCR's ANT IN terminal, channel 3 or 4 will become the only active channel on your VCR; this is normal. All of your Cable Box's channels will be receivable through channel 3 or 4 on your VCR.
    - If the Cable Box is connected to your VCR's VIDEO IN and AUDIO IN connectors, "SCAN COMPLETED — NO SIGNAL —" will be displayed and "AU" (Auxiliary input) will become the only available channel on your VCR; this is normal. All of your Cable Box's channels will be receivable through "AU" (channel "0") on your VCR.



Now go to ☞ p.16 "Setting-up the VCR Plus+ feature".

Setting Up Your VCR (cont'd)

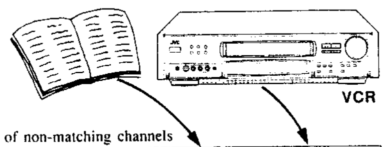
Setting-up the VCR Plus+ feature

Depending on the broadcast stations that are receivable in your area, or the cable stations offered by our cable supplier, you may have to make certain changes in your VCR's "Guide Channel Set" menu to get proper results. Please read on and find out what you need (and don't need) to do.

Make sure that you have already...

set the VCR's clock
set the VCR's tuner.

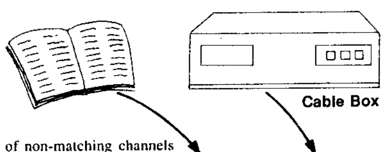
(If NOT using Cable Box)



Example of non-matching channels

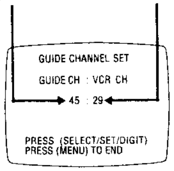
Broadcast Station	VCR Plus+™ Assigned Guide Channel	The channel your VCR receives the station on
WNYB (TBN)	67	49
WSBK Boston, MA	15	38
WXTV Paterson, NJ	12	41
WNJU (Ind.)	6	47
WEDW Bridgeport, CT	14	49
WLIG Riverhead	10	55
WFXV (FOX)	33	28

(If using Cable Box)



Example of non-matching channels

Cable Station	VCR Plus+™ Assigned Guide Channel	The channel your Cable Box receives the station on
WNJU (Ind.)	6	8
WLIW (PBS)	21	34
Music Television	48	20
Cable News Network	42	27
Home Box Office	33	28
Cinemax	45	29



```
GUIDE CHANNEL SET

GUIDE CH : VCR CH
      45 : 29

PRESS (SELECT/SET/DIGIT)
PRESS (MENU) TO END
```

Then..

A COMPARE CHANNEL NUMBERS

Most TV listings will have a chart indicating the "Guide Channel" number that each TV station has been assigned for purposes of VCR Plus+™ programming. Check in your TV listing and see whether that number is the same as the channel number you receive that station on with your VCR or Cable Box.*

If the numbers match, you don't have to do anything. You can go directly to "Timer-Recording with VCR Plus+™" p.20.

If there are stations where the numbers are different, and you want to be able to timer-record them, you will have to "tell" the VCR about the mismatch. Continue to step B.

If there are stations where the numbers are different, but you don't want to timer-record them, you can go directly to "Timer-Recording with VCR Plus+™" p.20.

*SPECIAL NOTE FOR CABLE SUBSCRIBERS

- In many instances, cable TV stations have VCR Plus+™ Guide Channel numbers that DO NOT match the actual channel number the station is received on. Check your TV listing, or check with your cable supplier for details.
- In many instances, normal broadcast TV stations can be viewed on cable. Check your TV listing, or check with your cable supplier for details.

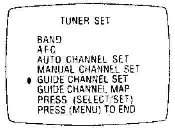
B TURN ON THE VCR

1 If the VCR is off, press POWER to turn it on.
- If watching on channel 3 or 4, press TV/VIDEO to select the video mode. The VCR's VIDEO indicator will light.

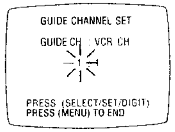
C ACCESS THE ON-SCREEN MENU

2 Press MENU until the Tuner Set menu appears.

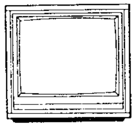
3 Press SET to move the cursor to "GUIDE CHANNEL SET", and then press SELECT.
- The Guide Channel Set screen will appear.



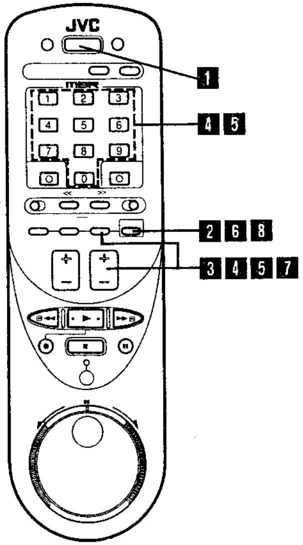
```
TUNER SET

  BAND
  AFC
  AUTO CHANNEL SET
  MANUAL CHANNEL SET
♦ GUIDE CHANNEL SET
  GUIDE CHANNEL MAP
  PRESS (SELECT/SET)
  PRESS (MENU) TO END
```



```
GUIDE CHANNEL SET

GUIDE CH : VCR CH
       1

PRESS (SELECT/SET/DIGIT)
PRESS (MENU) TO END
```

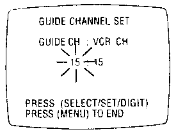


POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



D INPUT THE GUIDE CHANNEL

4 Press SET or the Digit keys to input the Guide Channel number (as shown in TV listing or this manual), and then press SELECT.

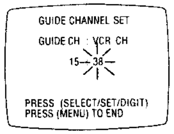


```
GUIDE CHANNEL SET

GUIDE CH : VCR CH
     15 : 15

PRESS (SELECT/SET/DIGIT)
PRESS (MENU) TO END
```

E INPUT THE RECEIVING CHANNEL

If you don't use an external Cable Box . . .

5 Press SET or the Digit keys to input the channel number your VCR receives the station on, and then press SELECT.



```
GUIDE CHANNEL SET

GUIDE CH : VCR CH
     15 : 38

PRESS (SELECT/SET/DIGIT)
PRESS (MENU) TO END
```

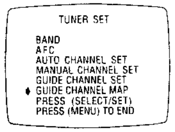
If you use an external Cable Box . . .

5 Press SET or the Digit keys to input the channel number your Cable Box receives the station on, and then press SELECT.
- If there are other GUIDE CH numbers which don't match with the VCR CH numbers, input the changes by repeating steps D – E.

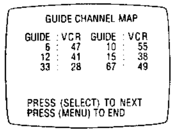
F CHECK THE GUIDE CHANNEL MAP

6 Press MENU once to go back to the Tuner Set menu.

7 Press SET to move the cursor to "GUIDE CHANNEL MAP", and then press SELECT.
- A screen with GUIDE CH numbers (in ascending order) with their corresponding VCR CH numbers will be displayed. Check to make sure your entries are correct.
- If there are more than 10 entries, press SELECT to display the 11th and higher entries.



```
TUNER SET

  BAND
  AFC
  AUTO CHANNEL SET
  MANUAL CHANNEL SET
  GUIDE CHANNEL SET
♦ GUIDE CHANNEL MAP
  PRESS (SELECT/SET)
  PRESS (MENU) TO END
```



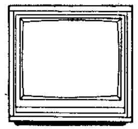
```
GUIDE CHANNEL MAP

GUIDE : VCR   GUIDE : VCR
    6 :  47      10 :  55
   12 :  41      15 :  38
   33 :  28      67 :  49

PRESS (SELECT) TO NEXT
PRESS (MENU) TO END
```

G RETURN TO THE TV SCREEN

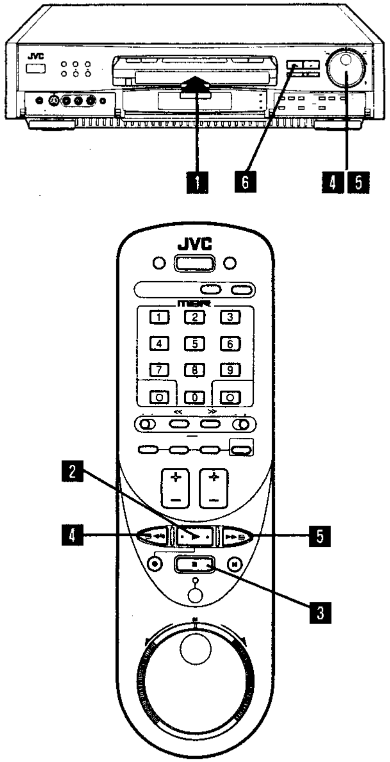
8 Press MENU as many times as necessary.

▶ Playing A Tape

The easiest, most basic operation possible with your VCR is tape playback. Already-recorded signals on a video tape are read by your VCR and displayed on your TV just like a TV program.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



A LOAD A CASSETTE

1 Insert a cassette with its window side up, and label side facing you. Press gradually on the middle of the cassette until the VCR pulls the cassette in.
- The VCR power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press ▶ (Play).

C TO STOP PLAYBACK

3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

4 Press ◀◀ to rewind the tape (or turn the VCR Shuttle ring to the left and release it).

5 Press ▶▶ to fast-forward the tape (or turn the VCR Shuttle ring to the right and release it).
- Press ■ to stop the tape.

E TO EJECT THE TAPE

6 Press the VCR's ■/▲ (Stop/Eject) button.

To check the picture while rewinding or fast-forwarding

This "Open Search" function lets you visually check how far you have rewound or fast-forwarded the tape.

USING THE REMOTE CONTROL

During Rewind...

[1] Press REW and hold it down. The picture will be visible on the TV screen.

[2] Release REW when you're done checking.

During Fast-Forward...

[1] Press FF and hold it down. The picture will be visibile on the TV screen.

[2] Release FF when you're done checking.

USING THE VCR'S SHUTTLE RING

During Rewind...

[1] Turn the shuttle ring fully to the left. The picture will be visible on the TV screen.

[2] Release the shuttle ring when you're done checking.

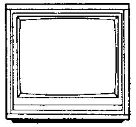
During Fast-Forward...

[1] Turn the shuttle ring fully to the right. The picture will be visible on the TV screen.

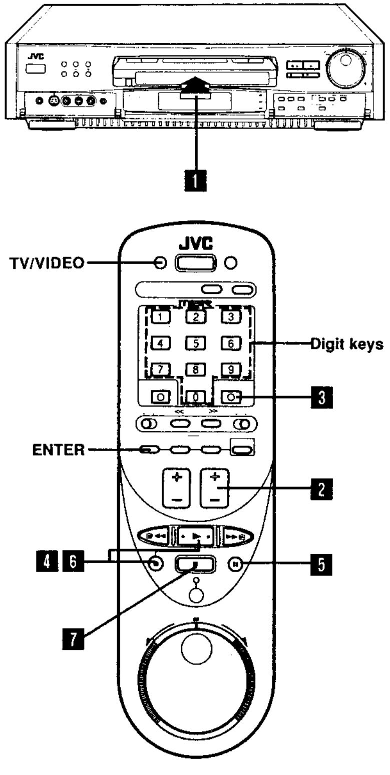
[2] Release the shuttle ring when you're done checking.

● Recording On A Tape

TV signals being received by the VCR's built-in tuner can be recorded onto a video tape. This is realtime video recording.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically.
- If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B CHOOSE A PROGRAM

2 Press CH(annel) +/– (or the digit keys followed by ENTER) to select the channel you wish to record.
- Even if you don't press ENTER, the channel will automatically be changed in about 2 seconds.

C SET THE TAPE SPEED

3 Press SP/EP.

D TO START RECORDING

4 Press ● (Record) and ▶ simultaneously.

E TO PAUSE RECORDING

5 Press ❚❚.

6 Press ▶ to resume recording.

F TO STOP RECORDING

7 Press ■.

To watch a program while recording another

During Recording...

[1] Press TV/VIDEO. The VCR's VIDEO indicator and the TV broadcast being recorded will disappear.

[2] Use the channel controls on the TV to select the other channel you wish to view.

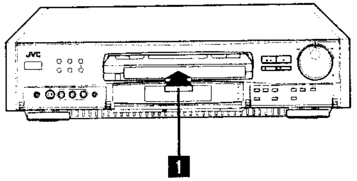
- The program selected with the TV channel controls will appear on the TV screen while the one selected with the VCR channel controls will be recorded on the tape.

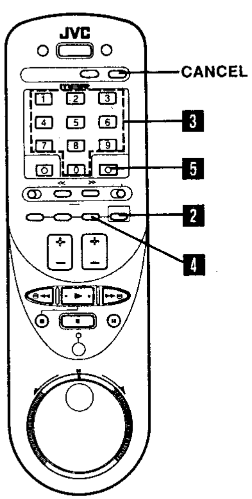
Timer-Recording with VCR Plus+™

Your video recorder is equipped with the VCR Plus+™ programming system. This programming system greatly simplifies timer programming because you won't have to enter all the data that is usually necessary (such as date, start and stop time, and channel). Simply key-in the PlusCode™ number for the TV program you wish to record (in most TV listings) and the VCR's timer is programmed. (For On-Screen Timer Programming without VCR Plus+™ ☞ p.28.)

VCR Plus+™ programming is not possible unless you have already....

set the VCR's clock
set the VCR's tuner
made necessary changes in the Guide Channel Set screen.





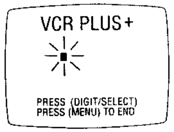
A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically.

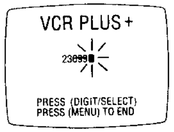
B INPUT THE TV PROGRAM'S CODE NUMBER

2 Press the remote control's MENU button.
- The "VCR PLUS+" input screen will be displayed.

3 Press the Digit keys to enter the PlusCode™ number for the TV program you wish to record.
- To make corrections, press CANCEL and re-input with Digit keys.



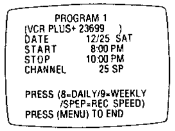
```
VCR PLUS+

PRESS (DIGIT/SELECT)
PRESS (MENU) TO END
```



```
VCR PLUS+
23699
PRESS (DIGIT/SELECT)
PRESS (MENU) TO END
```

C CHECK FOR CORRECTNESS

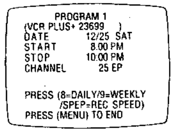
4 Press SELECT.
- The settings for the PlusCode™ number you just entered will be displayed.
- If the settings are incorrect and do not match the program you wish to record, press CANCEL and, after pressing MENU three times, re-input the PlusCode™.



```
PROGRAM 1
(VCR PLUS+ 23699    )
DATE         12/25  SAT
START         8:00 PM
STOP         10:00 PM
CHANNEL        25 SP

PRESS (8=DAILY/9=WEEKLY
        /SPEP=REC SPEED)
PRESS (MENU) TO END
```

D SELECT THE TAPE SPEED

5 Press SP/EP.

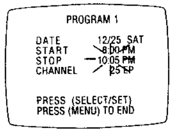


```
PROGRAM 1
(VCR PLUS+ 23699    )
DATE         12/25  SAT
START         8:00 PM
STOP         10:00 PM
CHANNEL        25 EP

PRESS (8=DAILY/9=WEEKLY
        /SPEP=REC SPEED)
PRESS (MENU) TO END
```

TO MAKE CHANGES IN THE SETTINGS

You can delay a program's stop time or make other such "revisions" in the settings.

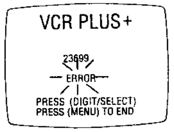
1. After step D, press SELECT.
2. Press SELECT to move to the setting you wish to change, so that it blinks.
3. Press SET to make the change.
4. Return to step E.



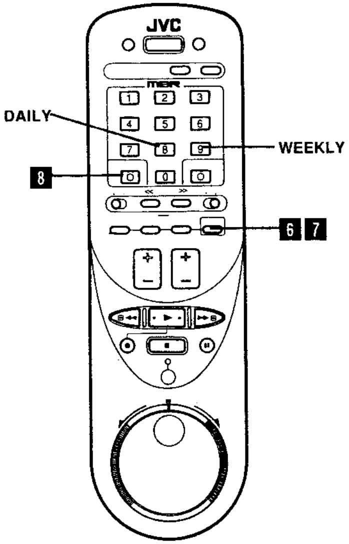
```
PROGRAM 1

DATE         12/25  SAT
START         8:00 PM
STOP         10:05 PM
CHANNEL        25 EP

PRESS (SELECT/SET)
PRESS (MENU) TO END
```

"ERROR" WARNING

If the PlusCode™ you input is incorrect, "ERROR" may appear on the screen to advise you of the error. This happens when the code is for a program which has already passed. "ERROR" is displayed for about 4 seconds and returns to the input screen (step B).



```
VCR PLUS+

23699
ERROR
PRESS (DIGIT/SELECT)
PRESS (MENU) TO END
```



TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.
- To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

E RETURN TO THE TV SCREEN

6 Press MENU. (Leave AUTO TIMER "OFF" for now.)
7 Press MENU again.

F SET TO TIMER MODE

8 Press TIMER.
- The VCR will enter the timer mode and power will go off.

For AUTO TIMER and other timer programming features, ☞ p.27.
For other error indications, ☞ p.39.

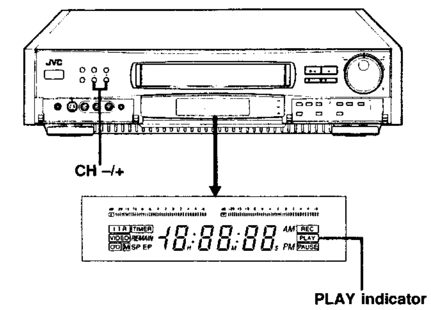
To Timer-Record Daily Serials

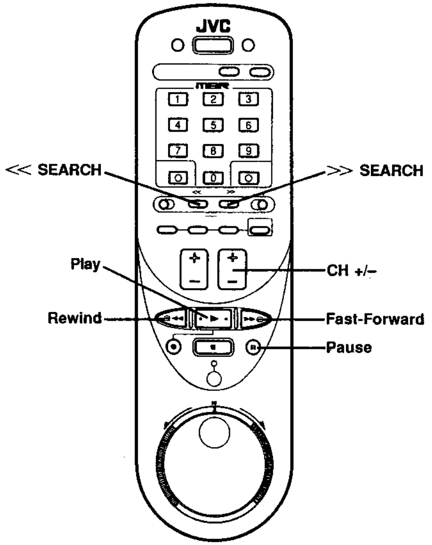
This function lets you set the recorder to timer-record at the same time every day, Monday through Friday.
- After pressing SELECT in step 4, press DAILY (Digit key 8). "DAILY" will appear.

To Timer-Record Weekly Serials

This function lets you set the recorder to timer-record at the same time on the same day every week.
- After pressing SELECT in step 4, press WEEKLY (Digit key 9). "WEEKLY" will appear.

Special Features





For Playback

To view a still picture

During Playback...

1. Press Pause to view a still picture.
2. To advance the picture frame by frame, press Pause again.
3. Press Play to resume normal playback.

To view a slow/fast-motion picture

You can view pictures in slow motion (forward direction) or fast motion (either direction). The SEARCH buttons let you control the speed and the direction.

During Play or Still...

1. Press either SEARCH button. Tape will move in the corresponding direction.
   - The more times the button is pressed, the faster the playback picture will move.
   - To decrease speed, press the button for the opposite direction.
   - Press ► (Play) to resume normal playback.

Or...

During Playback...

1. Press Fast-Forward for forward fast-motion, or Rewind for reverse fast-motion.
2. Press Play to resume normal playback.

- For short searches, keep Fast-Forward or Rewind pressed for more than 2 seconds. When released, normal playback will continue.

To adjust tracking manually

This overrides your VCR's automatic tracking.

During Playback...

1. Press the VCR's CH(annel) +/– buttons simultaneously to cancel auto tracking.
   - The remote control's CH +/– cannot be used for this purpose.
2. Press CH + or – to adjust tracking.
   - Press the VCR's CH +/– simultaneously to return to automatic tracking.

During Slow...

1. Simply press CH + or – to adjust tracking.

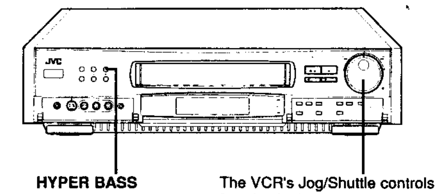
During Still...

1. Press CH + or – to remove vertical jitter.

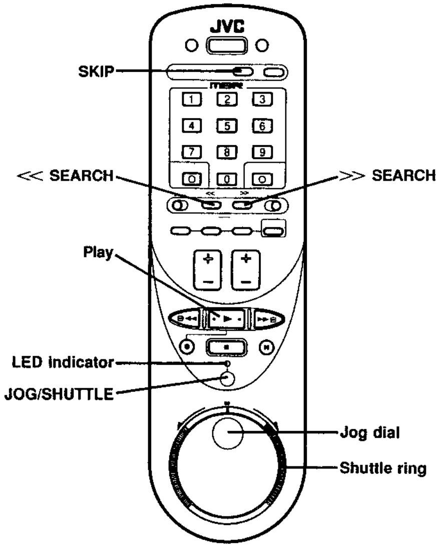
To play the whole tape repeatedly

During Playback...

1. Press Play for more than 5 seconds, and release.
   - The "PLAY" indicator on the VCR panel will blink slowly.
   - The tape will be played 20 times automatically, and then stop.



The VCR's Jog/Shuttle controls function in the same way as those on the remote control.



To find the beginning of a recording

Index Search gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Stop....

1. Press SEARCH << or >>. "INDEX–1" or "INDEX 1" will be displayed and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press SEARCH << or >> repeatedly until the correct index number is displayed.
   - When the specified index code is found, playback will start automatically.

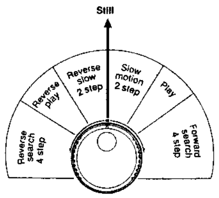
For Playback (cont'd)

To view jog/shuttle special effects

You can view pictures in slow to fast motion, or frame-by-frame.

During Still or Playback...

1. Press JOG/SHUTTLE.
   - The LED indicator will light.
   - Not necessary when using the VCR's Jog/Shuttle.
2. Turn the outer ring (Shuttle) to the right for forward slow motion and search.
   - Release the Shuttle for a still picture, or...
   - For fast-forward with a visible picture, turn the Shuttle all the way to the right and release it within 1 second.
3. Turn the outer ring (Shuttle) to the left for reverse play and search.
   - Release the Shuttle for a still picture, or...
   - For rewind with a visible picture, turn the Shuttle all the way to the left and release it within 1 second.



During Still or Playback...

1. Press JOG/SHUTTLE.
   - The LED indicator will light.
   - Not necessary when using the VCR's Jog/Shuttle.
2. Rotate the inner dial (Jog) clockwise or counterclockwise for jog control. The tape moves frame-by-frame at the speed with which the dial is rotated, in the direction the dial is rotated.

To resume normal playback, press the PLAY button.

Hyper-Bass Sound

Lower frequencies (bass sound) can be boosted instantly.
You can make Hi-Fi VHS movie software, etc. sound more dynamic.

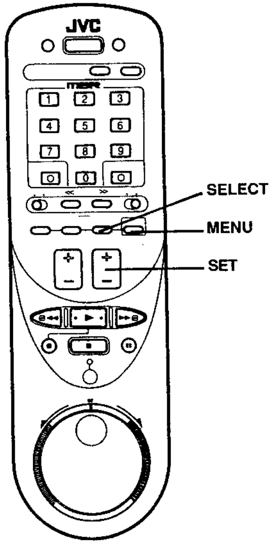
During Playback or Stop...

1. Press the HYPER BASS button on the VCR.
   - HYPER BASS indicator lights.
   - To turn it off, press HYPER BASS again.

To skip over unwanted sections

During Playback...

1. Press SKIP from 1 to 4 times.
   This fast-motions through 30-sec. to 2-min. of tape.
   - Playback resumes automatically.
   - Press PLAY to cancel a Skip Search midway.


JVC
SELECT
MENU
SET

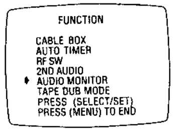
For Playback (cont'd)

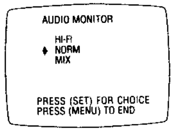
To select the soundtrack

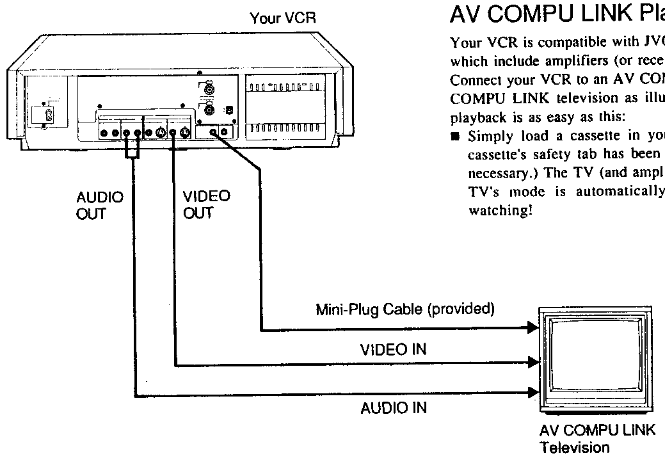
Your VCR is capable of recording two soundtracks (Hi-Fi and NORMAL) simultaneously, and playing back the selected soundtrack or two together.

During Playback or Stop:

1. Press MENU until the Function menu appears (☞ p. 12).
2. Press SET to choose "AUDIO MONITOR", and then press SELECT.
3. Press SET to choose "HI-FI", "NORM", or "MIX".
   - HI-FI to listen to the Hi-Fi soundtrack.
   - NORM to listen to the normal soundtrack.
   - MIX to listen to both soundtracks combined. Select this setting when playing back edited tapes with insert edits or dubbed audio made on an appropriately equipped VCR.
4. Press MENU as many times as necessary to exit.


FUNCTION
CABLE BOX
AUTO TIMER
RF SW
2ND AUDIO
♦ AUDIO MONITOR
TAPE DUB MODE
PRESS (SELECT/SET)
PRESS (MENU) TO END


AUDIO MONITOR
HI-FI
♦ NORM
MIX
PRESS (SET) FOR CHOICE
PRESS (MENU) TO END

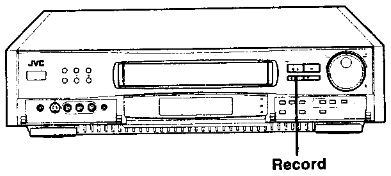

Your VCR
AUDIO OUT
VIDEO OUT
Mini-Plug Cable (provided)
VIDEO IN
AUDIO IN
AV COMPU LINK Television

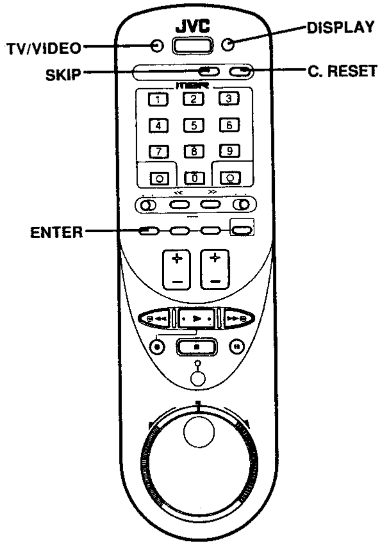
AV COMPU LINK Playback

Your VCR is compatible with JVC's AV COMPU LINK components which include amplifiers (or receivers) and televisions.

Connect your VCR to an AV COMPU LINK amplifier and/or an AV COMPU LINK television as illustrated. AV COMPU LINK video playback is as easy as this:

- Simply load a cassette in your VCR and press PLAY. (If the cassette's safety tab has been removed, even this "touch" is not necessary.) The TV (and amplifier) turn on automatically and the TV's mode is automatically set to VIDEO; you're already watching!



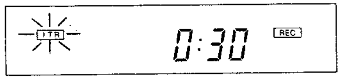

JVC
TV/VIDEO
SKIP
ENTER
DISPLAY
C. RESET

For Recording

To set the VCR to shut-off automatically (Instant Timer Recording)

During Recording...

1. Press the VCR's Record button. The "ITR" indication blinks and "0:30" appears, advising that power will switch off after 30 minutes.



2. Press Record again to delay the off-time by 30-minute increments (up to 9 hours).

- This function is available only using the Record button on the VCR.
- After the off-time is set, the display returns to the previously displayed mode (counter, channel, clock or remain).
- You can check the time remaining before the VCR shuts off by pressing Record once; the remaining time is displayed for 5 seconds. (Pressing Record more than once will delay the shut-off time.)

To display the elapsed recording time

Before starting recording...

1. Press C. RESET.
   - The counter will be reset to "0H 00M 00S", and will show the exact elapsed time as the tape runs.
2. After starting recording, press ENTER at any time to check the elapsed time on the TV screen.
3. Press ENTER again to clear it from the screen.

To display the remaining tape time

1. Press ENTER. Counter information appears on the screen.
2. Press DISPLAY until "REMAIN" appears. Approximate remaining tape time appears on the TV screen and VCR display panel.
   - If recording is in progress, the remaining time display on the VCR changes back to the "REC" mode display after 5 seconds.
   - Pressing DISPLAY repeatedly changes the displayed indication (Counter → Date → Remain).
3. Press ENTER again to clear it from the screen.

To locate a blank portion of tape

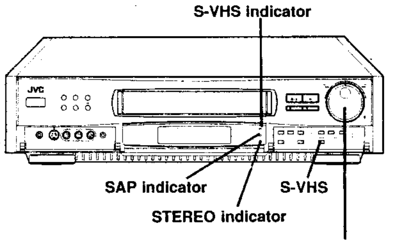
During Stop....

1. Press SKIP.
   - The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
   - The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

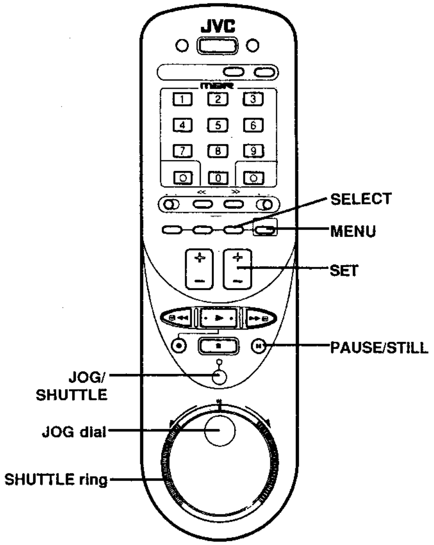
NOTE:

- Before you begin recording, playback the tape for a few seconds to make sure there is nothing located afterward.

Special Features (cont'd)



The VCR's Jog/Shuttle controls can also be used for retake.



To remove unwanted segments while recording

The Retake function lets you cut out unwanted parts of a TV program while you're recording it.

During Recording...

1. Press PAUSE/STILL.
2. Turn the JOG dial or SHUTTLE ring in either direction to locate the beginning of the unwanted part.
   - When using the remote control unit, first press the JOG/SHUTTLE button so that the LED indicator lights.
   - Release the dial or ring to return to the Record-Pause mode.
3. *Press PLAY when you wish to resume recording.*

For Recording (cont'd)

S-VHS (Super VHS) and VHS

Your VCR can record in either S-VHS or VHS.

- To record in S-VHS, insert a cassette marked "S-VHS". The S-VHS indicator will light and the S-VHS recording mode is automatically selected.
- To record in VHS, insert a cassette marked "VHS". The VHS recording mode is automatically selected.
- You can also record in VHS on S-VHS cassettes. To do this, after inserting an S-VHS cassette, press the S-VHS button. The S-VHS indicator will go out.

Stereo and SAP (Second Audio Program)

Your VCR is equipped with an MTS decoder for reception of Multichannel TV Sound broadcasts.

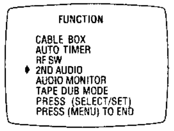
- When a stereo program is being received, the STEREO indicator lights.
- When an SAP program (such as a bilingual broadcast) is being received, the SAP indicator lights.
- When a stereo program is accompanied by SAP audio, both indicators light.

To record stereo programs

Stereo programs are automatically recorded in stereo on the Hi-Fi audio track. No special operation is required. Simply follow the basic recording procedure.

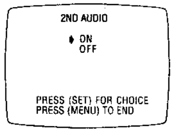
- To listen to the stereo soundtrack while recording, set the on-screen AUDIO MONITOR to "HI-FI". ☞ p.24

To record SAP programs


FUNCTION

CABLE BOX
AUTO TIMER
RF SW
♦ 2ND AUDIO
AUDIO MONITOR
TAPE DUB MODE
PRESS (SELECT/SET)
PRESS (MENU) TO END

1. Press MENU until the Function menu appears (☞ p.12).
2. Press SET to choose "2ND AUDIO", and then press SELECT.
3. Press SET to choose "ON".
4. Press MENU as many times as necessary to exit.

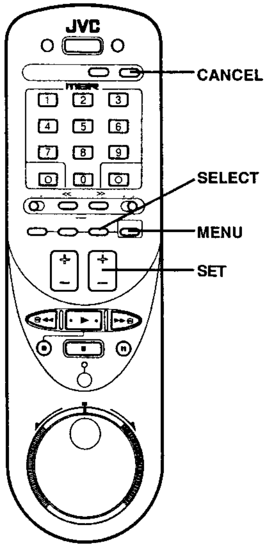

2ND AUDIO

♦ ON
OFF

PRESS (SET) FOR CHOICE
PRESS (MENU) TO END

Then follow the basic recording procedure.

- If an SAP program is received, the SAP audio will be recorded on both the Hi-Fi and the normal audio tracks. The main audio program will not be recorded.
- If a regular program (non-SAP) is received, the main audio will be recorded on both the Hi-Fi and the normal audio tracks.

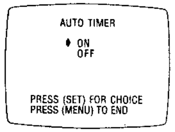


For Timer-Recording

These features can be used for programs that were input using the VCR Plus+™ function (☞ p.20) or the On-Screen Timer Programming function (☞ p. 28).

To use "Auto Timer"

What this feature does: Usually, the timer mode is not engaged unless the TIMER button is pressed. But with AUTO TIMER set to ON, the timer mode is automatically engaged when the VCR's power is turned off, and is disengaged whenever VCR power is turned on again.


AUTO TIMER

♦ ON
OFF

PRESS (SET) FOR CHOICE
PRESS (MENU) TO END

1. During step "E" (☞ p.21) or step "I" (☞ p.29), press SET to choose "ON", and press MENU.

Or...

1. Press MENU until the Function menu appears (☞ p. 12).
2. Press SET to move the cursor to "AUTO TIMER", and then press SELECT.
3. Press SET to choose "ON".
4. Press MENU as many times as necessary to exit.

To check and cancel programs

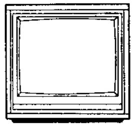
Make sure the timer mode is disengaged first. Then...

1. Press MENU twice (to access the Program Set screen).
2. Press SET to check through the programs in succession.

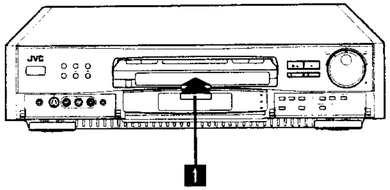
To cancel the program...

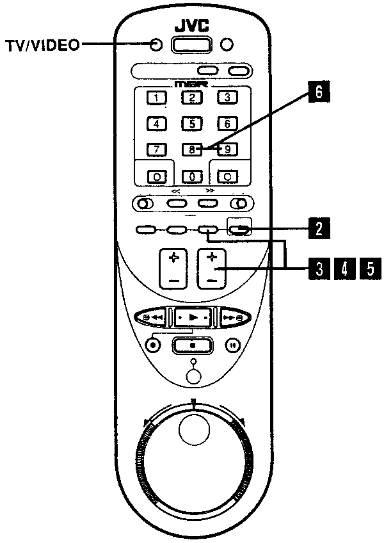
3. Press CANCEL.
   - Repeat steps 2 and 3 as necessary.
4. Press MENU as many times as necessary to exit.

Special Features (cont'd)



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)





You can also use the MENU, SET and SELECT buttons on the VCR.

For Timer-Recording (cont'd)

With the On-Screen Timer Programming function introduced here you can directly program the VCR's timer to record up to 8 TV shows, up to a year ahead. It's especially convenient when you want to timer-record programs while you're away from home for long periods of time (like for over a week), or for TV programs listed without a PlusCode™. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.

To program the timer without VCR Plus+™

A LOAD A CASSETTE

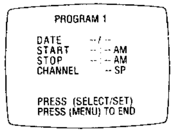
1 Insert a cassette with the safety tab in place.
- The VCR power will come on automatically. If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

B ACCESS THE ON-SCREEN MENU

2 Press MENU twice.
- The Program Set screen will appear.
- If the clock has not been set, the Initial Set screen will appear. To set the clock, ☞p.12.

C SELECT A PROGRAM NUMBER

3 Press SET to move to a vacant program number, and then press SELECT.
- Initially all programs are vacant, and the cursor is at program 1. So simply press SELECT.



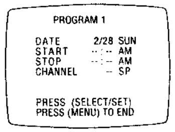
```
      PROGRAM 1

DATE       --/--
START      --:-- AM
STOP       --:-- AM
CHANNEL       -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

D INPUT THE DATE

4 Press SET to set the month, and then press SELECT.

5 Press SET to set the day, and then press SELECT.
- The day of the week will automatically appear.

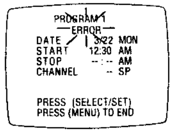
6 To record the program daily (Mon-Fri) press DAILY (Digit key 8). To record the program weekly press WEEKLY (Digit key 9).
- "DAILY" or "WEEKLY" will appear on the screen.



```
      PROGRAM 1

DATE       2/28 SUN
START     --:-- AM
STOP      --:-- AM
CHANNEL      -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

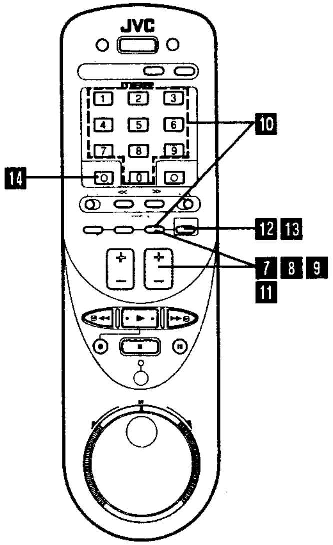
"ERROR" WARNING

If the start time you input has already passed (i.e. is prior to the present date and time), the VCR will flash "ERROR" on the Program Set screen.



```
      PROGRAM 1
     —ERROR—
DATE        3/22 MON
START      12:30 AM
STOP       --:-- AM
CHANNEL       -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

Check if you've input the correct time and date. Remember: late night shows beginning at midnight or later must have the next day's date.



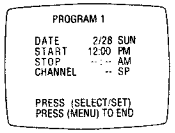
TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.
- To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

E INPUT THE START TIME

7 Press SET to set the hour (making sure that AM or PM is correct), and then press SELECT.

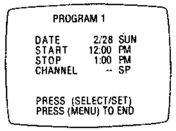
8 Press SET to set the minutes, and then press SELECT.



```
      PROGRAM 1

DATE       2/28 SUN
START     12:00 PM
STOP      --:-- AM
CHANNEL      -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

F INPUT THE STOP TIME

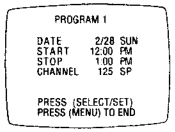
9 Set the stop time in the same way as you set the start time in step E.



```
      PROGRAM 1

DATE       2/28 SUN
START     12:00 PM
STOP       1:00 PM
CHANNEL      -- SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

G INPUT THE CHANNEL NUMBER

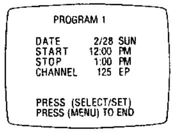
10 Press the Digit keys to enter the channel number, and then press SELECT.
- If you use a Cable Box, enter the channel number your Cable Box receives the station on.



```
      PROGRAM 1

DATE       2/28 SUN
START     12:00 PM
STOP       1:00 PM
CHANNEL     125 SP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

H SET THE TAPE SPEED

11 Press SET to choose SP or EP, and then press SELECT.
- To input another program, repeat steps C – H. (You can set up to a maximum of 8 programs.)



```
      PROGRAM 1

DATE       2/28 SUN
START     12:00 PM
STOP       1:00 PM
CHANNEL     125 EP

PRESS  (SELECT/SET)
PRESS (MENU) TO END
```

I RETURN TO THE TV SCREEN

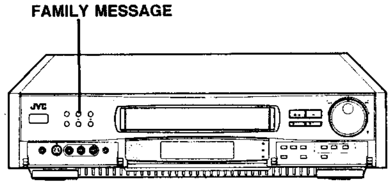
12 Press MENU. (Leave AUTO TIMER "OFF" for now.)

13 Press MENU again.

J SET TO TIMER MODE

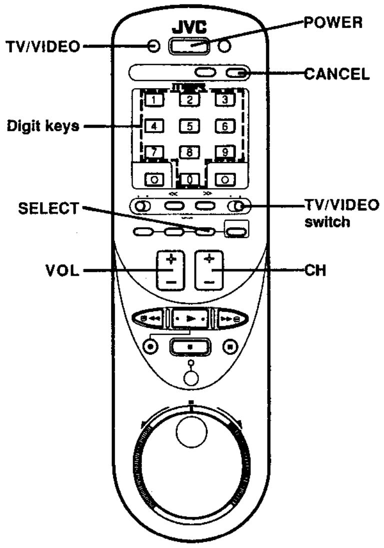
14 Press TIMER.
- The VCR will enter the timer mode and power will go off.

For AUTO TIMER and other timer programming features, ☞ p.27.
For other error indications, ☞ p.39.


FAMILY MESSAGE
JVC

Pre-set messages =
(blank)
PLEASE CALL:
PLEASE DON'T FORGET:
PLEASE PICK UP:
PLEASE START:
MEET ME AT:
I'M AT:
I'LL BE HOME BY:
REMEMBER, I LOVE YOU
HAPPY BIRTHDAY

Your input message =
Up to 20 characters long including spaces.


JVC
TV/VIDEO
POWER
CANCEL
Digit keys
SELECT
TV/VIDEO switch
VOL
CH

For Convenience

To leave a message on your VCR

STORING A MESSAGE IN MEMORY

Make sure your TV is on and tuned to the VCR's channel, then...

1. Press FAMILY MESSAGE on the VCR.
2. Press SET +/– to choose from the nine pre-set messages that are available.
3. Add your part of the message by pressing the Digit key to display the numeral or letter you need, and pressing SELECT to move to the next character position.
   - Example: By pressing the "1" key repeatedly, the following will be displayed:
     A → B → C → 1 → (blank)
4. Press FAMILY MESSAGE.
   - The on-screen display disappears and the message is stored in memory.
   - The button blinks to show there is a message in memory.
   - The time that the message was input will also be memorized.

CALLING UP A MESSAGE

If the VCR is off...

1. Press POWER.

If the VCR is on...

1. Press FAMILY MESSAGE.

- The message will be displayed on the TV screen. (TV power must be on and tuned to VCR's channel.)
- If watching on channel 3 or 4 be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.

2. Return to the normal screen by pressing CANCEL (this erases the message from memory), or FAMILY MESSAGE (this keeps the message in memory).

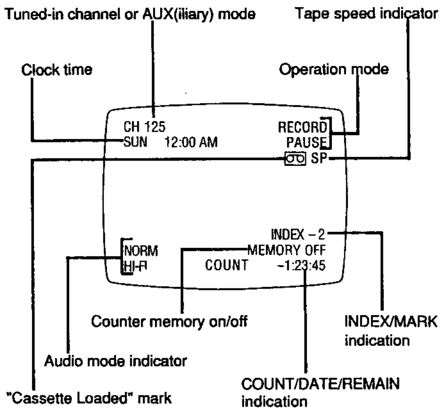
To control a TV set with the VCR's remote

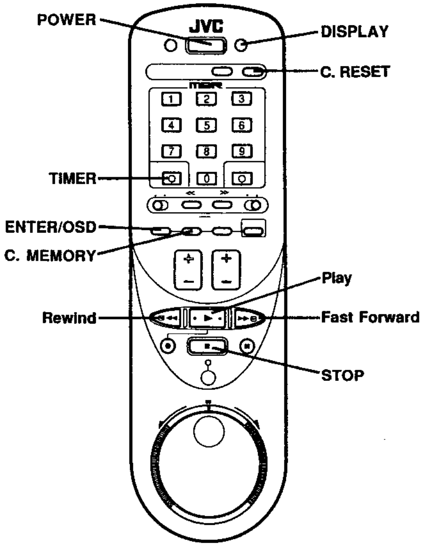
In addition to JVC remote control TVs, other TV brands (listed below) can also be controlled by setting the remote control to "TV". If your television is a JVC (Code 1), you don't have to set the TV code in step 2.

1. Set the TV/VIDEO switch to "TV".
2. While holding down the POWER button, press the Digit key corresponding to the code number for your TV's brand.
   - Now the following buttons on your remote control can be used to operate your TV set: POWER, VOL(VOLUME), CH(CHANNEL), TV/VIDEO, and the Digit keys.
3. To operate your VCR, set the TV/VIDEO switch back to "VIDEO".

TV BRAND NAME	CODE
JVC	1
MAGNAVOX	2
MITSUBISHI	3
PANASONIC	4
RCA	5

TV BRAND NAME	CODE
SHARP	6
SONY	7
TOSHIBA	8
ZENITH	9
HITACHI	0


Tuned-in channel or AUX(iliary) mode
Tape speed indicator
Clock time
Operation mode
CH 125
SUN 12:00 AM
RECORD
PAUSE
SP
INDEX – 2
NORM
Hi-Fi
MEMORY OFF
COUNT -1:23:45
Counter memory on/off
INDEX/MARK indication
Audio mode indicator
"Cassette Loaded" mark
COUNT/DATE/REMAIN indication


JVC
POWER
DISPLAY
C. RESET
TIMER
ENTER/OSD
C. MEMORY
Play
Rewind
Fast Forward
STOP

For Convenience (cont'd)

To check the VCR's mode

AUTOMATIC INDICATION

- **Channel**
  When the channel is changed, the new channel is displayed on the screen for 5 seconds.
- **Operation mode**
  When the operation mode is changed, the new mode is displayed — RECORD (5 sec.), PLAY (5 sec.), FF/REW (5 sec., when engaged from Stop mode), RECORD PAUSE (for as long as Pause is engaged), and ITR *:** (5 sec.).
- **"Cassette Loaded" mark**
  When a cassette is loaded, the mark is displayed for 5 seconds. It blinks when the VCR's EJECT button is pushed.

MANUAL RECALL

1. Press ENTER/OSD.
   - All indications corresponding to the current status are displayed for 5 seconds, leaving the counter information on the screen.
2. Press ENTER/OSD again to clear the display.

To reset the tape counter to zero

1. Press C. RESET.

- Pressing DISPLAY repeatedly changes the VCR's displayed indication. (Counter reading → Channel* → Clock time → Remaining).

*Channel is not displayed during playback.

To return to tape position zero

During Playback...

1. Press C. RESET at a point you wish to locate later.
   - The counter will read "0H 00M 00S".
2. Press C. MEMORY.
   - Counter Memory mark is displayed.
3. When you wish to return to that point, press STOP and then press Rewind.
   - The tape will rewind and stop at about "0H 00M 00S" automatically.
4. To cancel the Counter Memory mode, press C. MEMORY.

To automatically start the "next" function

For automatic start of playback after the tape is rewound...

1. Press Rewind.
2. Press Play within 2 seconds.

For automatic power off after the tape is rewound...

1. Press Rewind.
2. Press POWER within 2 seconds.

For automatic timer standby after the tape is rewound...

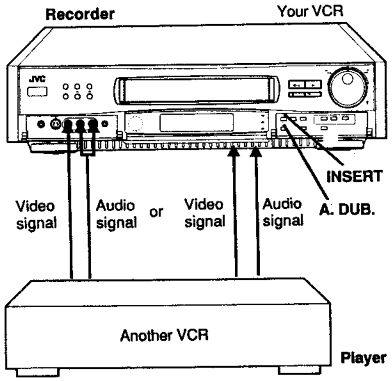
1. Press Rewind.
2. Press TIMER within 2 seconds.

- If you want the "next function" to automatically start when the counter reads "0H 00M 00S" (instead of at the beginning of the tape), press C. MEMORY so that the counter memory "M" mark appears on the VCR display panel before pressing Rewind or Fast-Forward.

Special Features (cont'd)

For Editing

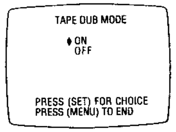
To edit to or from another VCR



Your VCR can be used as either the recording deck or the source player when editing tapes.

PREPARATION

1. Connect the player's VIDEO OUT and AUDIO OUT connectors to the recorder's VIDEO IN and AUDIO IN connectors.
2. Press MENU until the Function menu appears (☞ p. 12).
3. Press SET to choose "TAPE DUB MODE", and then press SELECT.
4. Press SET to choose "ON".
5. Press MENU as many times as necessary to exit.
6. Set the recorder's input mode to AUX.
   - With this VCR model, press the digit key "0". "AU" will appear instead of a channel number.



FOR ASSEMBLE EDITING

Assemble editing adds one recorded scene to another in succession. To use your VCR as the recording deck...

7. Load the source tape in the player, and the recording tape in your VCR.
8. Select the recording speed (SP or EP).
9. Put your VCR in the Record-Pause mode.
10. Play back the source tape to search for a scene to be edited.
11. Press the recorder's PLAY button where you want to start editing.
12. Press the recorder's PAUSE button to stop editing.
13. Repeat steps 10 through 12 to continue editing.

(Assemble Editing is also possible using your VCR as the playback deck.)

FOR INSERT EDITING

Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. **Use your VCR as the recording deck.**

7. Load the source tape in the player, and the recording tape in your VCR.
8. Play back the recording tape and engage the Still mode at the edit-in point (the beginning of the segment to be replaced).
9. Press INSERT.
   - Your VCR enters the Insert-Pause mode. (REC, PLAY and PAUSE light up on the FDP.)
   - The TV screen changes from the still picture to the input signal you are going to record.
10. Play back the segment of the source tape to be inserted.
11. Press PLAY.
    - Insert editing will start. (PLAY blinks and REC is displayed on the FDP.)
12. Press PAUSE to stop insert editing.
    - Do not press STOP to stop insert editing, otherwise the picture will be distorted at the switching point between the newly inserted and previously recorded pictures.

FOR AV INSERT EDITING

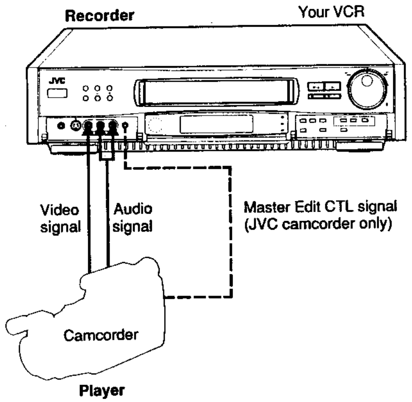
If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...
In step 9 above, after you press INSERT, press A. DUB. also. (REC and PLAY blink and PAUSE lights up on the FDP.)

NOTES:

- Connections made to the front panel VIDEO and AUDIO inputs automatically override any rear panel VIDEO/AUDIO input connections. If you wish to edit with another machine connected to the rear input connectors, make sure that there is nothing connected to the front connectors.
- If connections are made to both the front VIDEO and S-VHS connectors, the S-VHS connection has priority.

For Editing (cont'd)

To edit from a camcorder



Tape-to-tape editing is also possible using a camcorder (equipped with playback facility) as the player and your VCR as the recorder. In this case, the VCR's REMOTE PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

1. Connect the camcorder's AV OUT connector to the VCR's front panel VIDEO IN and AUDIO IN connectors.
   - With a Super VHS camcorder, connect its S-OUT connector to the VCR's S-VHS connector.
   - With monaural camcorders, use your VCR's AUDIO L (MONO) connector.
2. Connect the AV output cable's mini-plug to the REMOTE PAUSE terminal of the VCR.

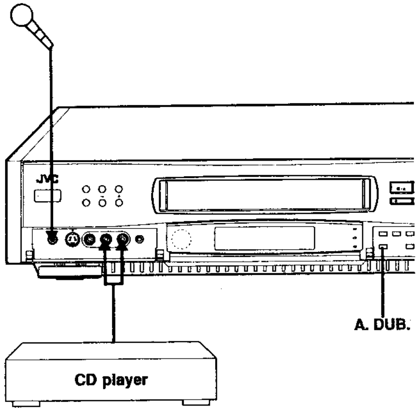
- A JVC camcorder with the Master Edit Control System can be used as a video camera for direct recording onto the VCR's tape. Put the VCR in Record-Pause and use the camcorder's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.) See camcorder's instruction manual for operating procedures.

3. Press MENU until the Function menu appears (☞ p. 12).
4. Press SET to choose "TAPE DUB MODE", and then press SELECT.
5. Press SET to choose "ON".
6. Press MENU as many times as necessary to exit.

OPERATION

7. Set the VCR's input mode to AUX by pressing digit key "0". "AU" will appear instead of a channel number..
8. Put the camcorder in the Play mode.
9. Put the VCR in the Record mode.

To add narration or music



Audio Dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack. Add your personal touch by recording commntary, etc.

PREPARATION

1. Connect a microphone to the MIC jack.
2. Set the VCR's input mode to AUX by pressing Digit key "0". "AU" will appear instead of a channel number.

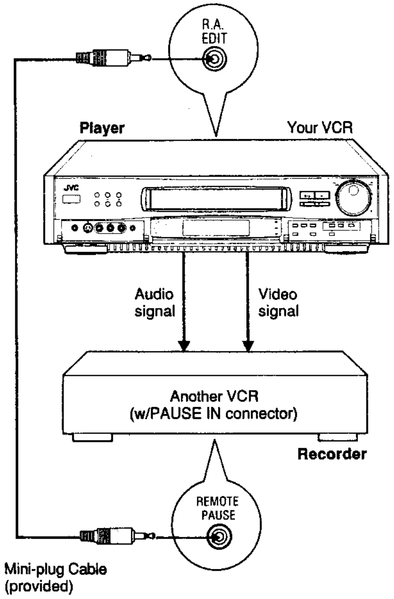
OPERATION

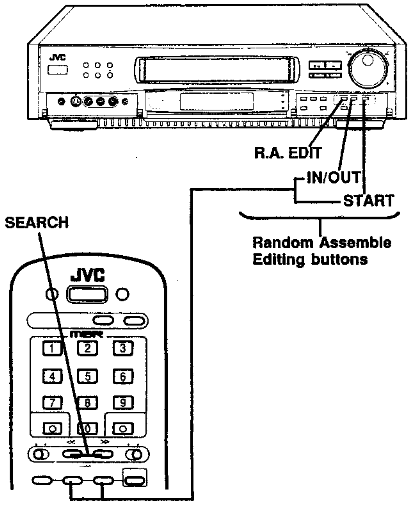
3. Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
   - Turn the SHUTTLE ring in either direction to quickly locate the desired scene. Simply release the SHUTTLE ring, and the Still mode will be engaged automatically.
   - Then turn the JOG dial for more precise location of the audio dubbing start point.
4. Press A. DUB.
   - Your VCR enters the Audio Dubbing-Pause mode. (REC blinks, PLAY and PAUSE light up on the FDP.)
5. Press PLAY.
   - Audio dubbing will start. (REC blinks and PLAY is displayed on the FDP.)
6. Pressing PAUSE/STILL temporarily stops audio dubbing.
7. Press STOP to stop audio dubbing.

NOTE:

- After audio dubbing, the normal audio track remains selected. To hear the Hi-Fi tracks, select "Hi-Fi" ☞ p.24.

Special Features (cont'd)


R.A.
EDIT
Player
Your VCR
JVC
Audio signal
Video signal
Another VCR
(w/PAUSE IN connector)
Recorder
REMOTE
PAUSE
Mini-plug Cable
(provided)


JVC
R.A. EDIT
IN/OUT
START
Random Assemble
Editing buttons
SEARCH
JVC
1
2
3
4
5
6
7
8
9
0

For Editing (cont'd)

Random Assemble Editing (R.A. Edit)

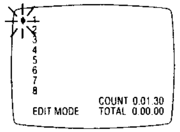
This function makes it easier to create edited videos when your VCR is used as the source player in combination with another JVC video deck which is equipped with a PAUSE (i.e. remote PAUSE IN) terminal. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified. (To R.A. Edit with another brand of VCR, ☞ p. 36)

PREPARATION

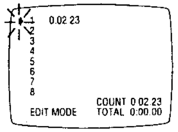
1. Connect your VCR's VIDEO OUT and AUDIO OUT connectors to the recording deck's VIDEO IN and AUDIO IN connectors.
2. Connect your VCR's R.A.EDIT connector to the recording deck's PAUSE connector.
   - If the recording deck does not have a PAUSE connector but has an R.A. EDIT connector, connect to the R.A. EDIT connector.
3. Turn both units on.
4. Engage the recorder's AUX(iliary) mode.

OPERATION

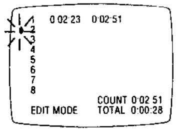
5. Insert a recorded cassette into your VCR.
6. Play back the tape in your VCR.
7. Press the R.A. EDIT button.
   - On-screen display is superimposed on the video playback.


1
2
3
4
5
6
7
8
EDIT MODE
COUNT 0.01.30
TOTAL 0.00.00

8. Use the SEARCH buttons to search for the point where you want an edited scene to start, and press IN/OUT.
   - The cut-in point is registered in memory.

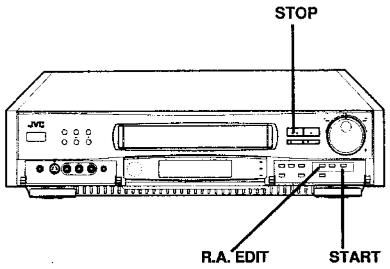

1
0.02 23
2
3
4
5
6
7
8
EDIT MODE
COUNT 0 02 23
TOTAL 0:00.00

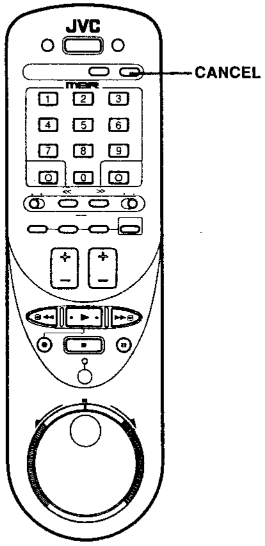
9. Use the SEARCH buttons to search for the point where you want the scene to end, and press IN/OUT.
   - The cut-out point is registered in memory.
   - The "TOTAL" reading displays the total running time of the edited scenes.


1
0 02 23
0 02 51
2
3
4
5
6
7
8
EDIT MODE
COUNT 0 02 51
TOTAL 0:00:28

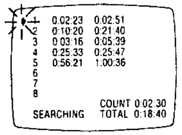
10. Specify additional scenes by repeating steps 8 – 9.

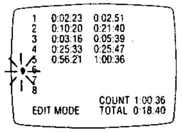
(Continued on next page.)


STOP
JVC
R.A. EDIT
START


JVC
CANCEL
1
2
3
4
5
6
7
8
9
0

11. Insert a cassette (with safety tab intact) into the recording deck, and put the recording deck in the Record-Pause mode.
12. Press START.
    - The function begins automatic editing; all the specified scenes are copied to the recording deck in sequential order.
    - The on-screen display remains superimposed while your VCR searches for each scene (the blinking cursor points to the scene number presently being searched), and is not displayed while the scenes are being edited.
    - While a scene is being searched, the recording deck automatically enters the Record-Pause mode.
    - When Random Assemble Editing is finished, your VCR enters the Still mode, the recording deck enters the Record-Pause mode, and the cursor blinks at the next available scene number.

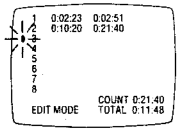

1
0:02:23
0:02:51
2
0:10:20
0:21:40
3
0 03:16
0:05:39
4
0:25:33
0:25:47
5
0:56:21
1:00:36
6
7
8
SEARCHING
COUNT 0:02:30
TOTAL 0:18:40


1
0:02:23
0:02.51
2
0:10:20
0:21:40
3
0:03:16
0:05:39
4
0:25:33
0:25:47
5
0:56:21
1:00:36
6
7
8
EDIT MODE
COUNT 1:00:36
TOTAL 0:18:40

13. Press R.A. EDIT again.
    - The on-screen display disappears.
14. Press STOP on both decks to end Random Assemble Editing.

TO MAKE CORRECTIONS

During step 8 or 9, you can correct a cut-in or cut-out point using the remote control. Each time the CANCEL button is pressed, the immediately preceding point is cleared and can be reset.


1
0:02:23
0:02:51
2
0:10:20
0:21:40
3
4
5
6
7
8
EDIT MODE
COUNT 0:21:40
TOTAL 0:11:48

- Example: Here, the cut-out point for "2" can be changed by pressing CANCEL once (to clear it) and re-setting it.By pressing CANCEL more times, you can back up to previous points for re-setting, but all points in between will be cleared in the process. (e.g. To reach the cut-out point for "1", the cut-in and -out points for "2" will be cleared.)

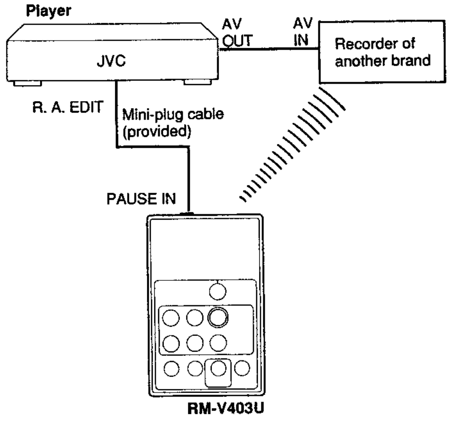
Special Features (cont'd)

VCR CODE LIST

VCR BRAND NAME	BUTTONS
AKAI	[illegible] [illegible] [illegible] [illegible]
GE	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
HITACHI	[illegible] [illegible] [illegible] [illegible]
JVC A	[illegible] [illegible]
B C	[illegible] [illegible] [illegible] [illegible]
MAGNAVOX	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
MITSUBISHI	[illegible] [illegible] [illegible] [illegible]
NEC	[illegible] [illegible] [illegible] [illegible]
PANASONIC	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

VCR BRAND NAME	BUTTONS
RCA	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
SANYO	[illegible] [illegible] [illegible] [illegible]
SHARP	[illegible] [illegible] [illegible] [illegible]
SONY	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
TOSHIBA	[illegible] [illegible] [illegible] [illegible]
ZENITH	[illegible] [illegible]

Note:
Camcorders may react to digit keys when they are pressed without pressing MBR SET at the same time.



For Editing (cont'd)

To R.A.Edit with another brand of VCR

The provided RM-V403U Multi-Brand R.A.Edit Controller makes Random Assemble Editing possible from your JVC VCR to a recording deck which is...

- a VCR which is not a JVC, or
- a JVC VCR which does not have a PAUSE or R.A.EDIT connector.

SET THE RECORDING DECK'S BRAND

Turn the VCR's power off before starting

1. Look in the VCR Code List for the brand and two-digit code number of the recording deck.
2. While pressing MBR SET, input the code number using the controller's Digit keys.
   - The code is set and the recording deck's power automatically comes on.
   - If the recording deck's brand has more than one code, try the codes until you reach the one that turns on the deck's power.

PREPARATION

3. Connect your VCR's VIDEO OUT and AUDIO OUT connectors to the recording deck's VIDEO IN and AUDIO IN connectors.
4. Connect your VCR's R.A. EDIT connector to the controller's PAUSE IN connector.
5. Engage the recorder's AUX(iliary) mode.

OPERATION

6. Select the scenes you wish to edit by following the Random Assemble Editing operation instructions (☞ p. 34, steps 5 – 10).
7. Insert a cassette (with safety tab intact) into the recording deck, and put the recording deck in the Record-Pause mode.
   - The Record-Pause mode can be engaged using the recording deck's controls or the RECORD STAND-BY button on the RM-V403U Controller.
8. Point the RM-V403U toward the recording deck's Infrared Sensor Window, and press the START button on your VCR or remote control. (☞ p. 35, step 12).
9. Press EDIT MODE.
   - The on-screen display disappears.
10. Press STOP on both decks to end Random Assemble Editing.

NOTE:

- With some manufacturers' VCRs, pressing RECORDER STAND-BY may not place the recording VCR into the Record-Pause mode. In this case, use the controls on the recording VCR to put it in the Record-Pause mode.

Swap Editing

Your VCR is equipped with a SWAP terminal. When combined with a swap-control-capable VCR such as the JVC HR-S10000U, editing will be made easier. For more information about swap connection and swap control, refer to the instruction manual of the swap-control-capable VCR.

Advantages Of S-VHS VCRs

You can edit from VHS to S-VHS, from S-VHS to VHS, or from S-VHS to S-VHS.

- From VHS to S-VHS (VIDEO-VIDEO connection): Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS (VIDEO-VIDEO connection): Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS (S-VIDEO connection): All signals will be transferred without degradation.

For Other Purposes

To add a "skipped" channel to your VCR's tuner

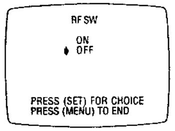
1. Press MENU until the Tuner Set menu appears (☞ p. 12).
2. Press SET to move the cursor to "AFC", and then press SELECT.
3. Press SET to choose "SPCL".
4. Press MENU.
5. Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
6. Input the channel number using the Digit keys.
7. Press ADD to store the channel.
8. Specify another channel number or press MENU as many times as necessary to exit.

To delete an unwanted channel from your VCR's tuner

1. Press MENU until the Tuner Set menu appears (☞ p.12).
2. Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
3. Input the channel number using the Digit keys or the CH +/– buttons.
4. Press SKIP to delete the channel.
5. Specify another channel number or press MENU as many times as necessary to exit.

To turn the RF switch off

DO NOT use this feature if your TV receives signals from your VCR on channel 3 or 4.



1. Press MENU until the Function menu appears (☞p.12).
2. Press SET to move the cursor to "RF SW", and then press SELECT.
3. Press SET to choose "OFF".
4. Press MENU as many times as necessary to exit.

- To turn the RF SW(itch) back on, press SET to choose "ON".
- When RF SW(itch) is set to OFF, the "VIDEO" indicator on the VCR display panel does not light even when the remote's TV/VIDEO button is pressed.

To change the remote code

The A/B CODE switch is preset to the "A" position because your VCR is initially set to respond to A code signals. You can easily modify your VCR to respond to B code signals.

1. Unplug the VCR's power cord from the AC outlet.
2. Set the A/B CODE switch to "B".
3. Plug the VCR's power cord back into the AC outlet.
   Do not use other remote controls at this stage.
4. Turn the VCR power on using the remote control's POWER button. The VCR will now respond only to B code signals.

? If You Have Any Questions

Before requesting service...

Power or Tape Transport Problems?

Symptoms	Check points
No power is applied to the VCR.	● Is the power cord disconnected? — Connect it.
Remote control does not operate the VCR.	● Did you load batteries? — Make sure they're loaded in the correct directions. ● Are the batteries discharged? — Replace with fresh batteries.
Clock is functioning properly, but the VCR cannot be powered.	● Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Cassette will not load. Gets stuck and is ejected a few seconds later.	● Are you inserting the cassette correctly? Incorrect insertion causes the built-in safety mechanism to automatically eject the cassette. — Wait a few seconds and re-insert correctly. — Be sure to push the middle of the cassette's label side and be sure the window side is up.
Tape stops during rewind or fast-forward.	● Is the C. MEMORY button pressed? — Press again to make "M" disappear from the counter display.
Tape will not rewind or fast-forward.	● Is the tape already fully rewound or fast-forwarded? — Check the cassette.

Playback Problems?

Symptoms	Check points
Playback picture does not appear while the tape is running.	● If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (3 or 4). (☞p.9) ● If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Noise appears during visual search.	● This is normal.
Noise appears during normal playback.	● Is the automatic tracking mode engaged? — Try manual tracking. (☞p.22)
Noise appears during slow playback.	— Try manual tracking. (☞ p.22)
Playback picture is blurred or interrupted while TV broadcasts are clear.	● Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer (☞ p.41).
Breaks are noticeable in Hi-Fi audio sound.	● Is the automatic tracking mode engaged? — Try manual tracking. (☞ p.22)
Hi-Fi soundtrack cannot be heard.	● Is "AUDIO MONITOR" on the FUNCTION menu set to "NORM"? — Set it to "HI-FI".

Recording Problems?

Symptoms	Check points
Recording cannot be started.	● Is a cassette loaded? ● Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape (☞ p. 5)
TV broadcasts cannot be recorded.	● Has "AUX" been selected by mistake? — Set to the desired channel.
Tape-to-tape editing is not possible.	● Is the camcorder or VCR correctly connected? ● Are all necessary power switches turned ON? ● Has "AUX" been selected? — Set to "AUX". — If using a rear panel input connection, make sure nothing is connected to the front panel connectors (☞ p. 32)
Camera recording is not possible.	● Is the camcorder correctly connected? ● Has "AUX" been selected? — Set to "AUX".

Timer-Recording Problems?

Symptoms	Check points
Timer recording is not possible.	● Have you set the clock correctly and programmed the timer correctly? — Check once again. ● Have you set-up the VCR? Make sure you have... — Set the VCR's tuner. — Made necessary changes in the Guide Channel Set screen. ● Is the TIMER indicator displayed on the display panel? — If not, press the TIMER button to display the TIMER indicator.
Cable channels are not automatically switched during timer-recording.	● Make sure that... — The Multi-System Cable Box Controller is connected to your VCR's CABLE BOX Connector (☞ p.14). — The lithium battery has been inserted into the Controller (☞ p.8). — The CABLE BOX CONTROLLER menu is set to "ON" (☞ p.15). — The Cable Box's power is left ON during timer-recording. ● Although the provided Multi-Brand Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
Timer recording takes place, but the channel is always wrong.	● Is CABLE BOX CONTROLLER set to "ON" even though you don't use an external Cable Box? — If you don't use a Cable Box, set CABLE BOX CONTROLLER to "OFF". (☞ p.15).
We moved, and now VCR Plus+™ doesn't work properly.	● TV stations differ by locale. It may be necessary to re-set the VCR.
"PROGRAM FULL" is displayed on the VCR Plus+ input screen.	● The VCR's timer memory if full; all 8 programs are used. — Cancel any unnecessary programs in the timer memory. ☞ p.27.
Timer programming screen does not function properly.	● Is the ITR indicator displayed on the display panel? — Timer programming is not possible while an ITR is in progress.
"TIMER" and "📼" on the display panel continue blinking.	● There is no cassette in the VCR. — Insert a cassette with safety tab.
The cassette is automatically ejected. "TIMER" and "📼" continue blinking.	● The inserted cassette has its safety tab removed. — Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. ☞p.5.
"TIMER" blinks for 10 seconds and the timer mode is cancelled.	● There are no preset programs in memory, or they have all been incorrectly preset. — Check the programmed data and re-program it as necessary. Press TIMER again.
The cassette is ejected, power is shut off and "TIMER" and "📼" are blinking.	● This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

Other Problems?

Symptoms	Check points
On-screen menu suddenly went blank and nothing can be displayed on the TV screen. (VCR is connected to your TV via RF Cable only, and receives video signals on channel 3 or 4.)	● Did you mistakenly turn the RF SW(itch) to "OFF"? — Press SET to turn it back "ON". — If the above doesn't work, unplug the power cord from the AC outlet, wait at least 10 seconds, and then plug it back into the outlet. Then press POWER to turn power back on, and press TV/VIDEO so that the VIDEO indicator lights. (Since this power inturruption clears all Initial Set and Program information from the VCR's memory, it will be necessary to re-set the clock and any programs that may have been in the timer memory.) ● Check for any loose connections.
Some channels are skipped over when scanning channels.	● Those channels are preset to be skipped over. If you need them, restore them. (☞ p.13, 37)
Channel cannot be switched.	● Is recording in progress? — Press the PAUSE button, change the channel, and press the PLAY button.
Snowy picture on screen when viewing TV programs while recording another program.	● Is the VIDEO indicator lit? — Press the TV/VIDEO button so that the indicator extinguishes.
Remote control does not work with my TV.	● Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability. (☞ p.30)
"12:00 AM" is blinking.	● This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the VCR's power plug was pulled from the AC outlet. To set the clock. ☞p.12. If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

? If You Have Any Questions (cont'd)

Notes regarding...

Tuner Set

- Since receivable channels differ by locale, it will be necessary to reset your VCR's channels when you move to another location. Auto Channel Set is the easiest way to do this. ☞ p.13 or 14, 37.

Playback

- If the end of the tape is reached during play or search, it is automatically rewound to the beginning and stops.
- The VCR automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable, use the CH –/+ buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞ p.22.
- When a new tape is inserted, the recorder enters the automatic tracking mode automatically.
- There is no audio during search, slow, still, or frame-by-frame playback.
- Picture loss will occur when search, still, or frame-by-frame is attempted with LP-mode recorded tapes. Press Play to return to normal playback and restore the picture.
- Although the HYPER BASS button lights when pressed, its effects cannot be heard when playing monaural tapes or when Audio Monitor is set to NORM. ☞p. 24.
- You do not have to set to NORM when playing back tapes with normal soundtrack only.
- When MIX is selected, both "HI-FI" and "NORM" appear on the TV screen when the OSD button is pressed.

Recording

- To start recording with the VCR's Record button, press it once on its own. Pressing Record more than once activates Instant Timer Recording. ☞ p.25.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The VCR automatically stops when record-pause continues for more than 5 minutes.
- If the end of the tape is reached while recording, it is automatically rewound to the beginning and stops.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, press Pause, then change the channel.
- With Retake, rainbow noise may occur in the rewound and re-recorded section.
- The Remaining Tape Time is calculated based on the tape speed (SP or EP) being used. The indicated remaining time is only approximate.
- Press PLAY or STOP to cancel Index Search or Blank Search before completion.
- An index code is not placed on the tape when recording is paused and then resumed.
- If the end of the tape is reached during Index Search, the mode is cancelled and the tape is rewound to the beginning.
- If the end of the tape is reached during Blank Search, the tape stops and "REMAIN 0:00" is displayed.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

Timer-Recording

- When timer-recording is successfully completed, the VCR power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the VCR's built-in clock, the clock's time must be accurate for correct timer-recording results.
- When you program the timer while viewing a program or a tape, the TV screen will show the on-screen menu but the audio will continue to be heard.
- You can also program the timer while the VCR is recording; the on-screen menu will not be recorded on tape.
- When timer-recording cable channels received through a Converter Box, be sure to keep the Converter Box set to ON.

Special Effects Playback

- If noise bars appear during slow motion, correct using manual tracking. ☞ p.22.
- During multi-speed search, some noise bars will appear.
- If the Shuttle direction is changed abruptly, some picture distortion will result.

Remote TV Operation

- Whenever you replace batteries in the remote control, it is necessary to re-set the TV code if your television is not a JVC TV.
- With some televisions, the TV/VIDEO button functions only to switch the TV to the VIDEO(AV) mode.
- Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV.
- Some TV sets may malfunction in response to B code signals. If this happens, switch back to the A mode.

Editing

- Connections made to the front panel VIDEO and AUDIO inuts automatically override any rear panel VIDEO/AUDIO input connections. If you wish to edit with another machine connected to the rear input connectors, make sure that there is nothing connected to the front connectors.
- If connections are made to both the front VIDEO and S-VHS connectors, the S-VHS connection has priority.

Insert Editing

- Insert editing is not possible with cassettes whose safety tab has been removed.
- Insert editing cannot be started from a non-recorded segment.
- In insert editing, the recording speed (SP/EP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.
- To stop insert editing automatically, first determine the edit-out point on the recording tape (the end of the segment to be replaced) and press the remote control's CANCEL button. Then follow steps 8 through 11 in "Insert Editing" (☞p.32); insert editing will stop automatically at the counter reading of 0: 00: 00.
- A small portion of the recording which precedes an insert edit may become erased.

Audio Dubbing

- When monitoring the sound during Audio Dubbing, the normal soundtrack will be automatically selected. If you wish to hear the mixed sound (Hi-Fi + normal soundtracks), ☞ p.24.
- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- If you wish to use audio sources other than microphone input, connect the audio equipment to the front panel Audio L and R connectors. (For monaural equipment, use the L connector.) If both the microphone and another audio source are connected, mixed recording is possible.
- If howling occurs, move the microphone away from the TV or reduce the TV sound volume. If necessary, monitor the sound with headphones.

Random Assemble Editing

- When editing, there may be a discrepancy of about 2 seconds on the playback tape between the locations you chose as cut-in/out points and the locations the VCR recognizes as those points.
- For any scene, the cut-out point must have a counter reading that is at least 1 second after the cut-in point. A cut-out point with a counter reading less than or the same as the cut-in point will not be registered.
- Since the playback deck prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any cut-in point on the playback tape.
- If the search time for a cut-in point exceeds 5 minutes, the recording deck's Record-Pause mode will be cancelled and editing will not take place.
- R.A.Edit is also possible with another JVC VCR which doesn't have a PAUSE IN terminal but does have an R.A.EDIT connector. In this case, connect both VCRs by their R.A.EDIT connectors.

Multi-Brand R.A. Edit Controller

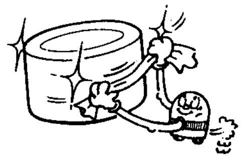
- If two JVC video recorders are used, make sure to set them to different signal codes in order to control each of them independently. ☞ p.35.
- Disconnect the PAUSE IN connector when editing is over. If left connected, and the VCR's power cord is unplugged, the VCR will consume power from the controller's batteries, exhausting them in about 8 hours.
- Although this controller is compatible with JVC VCRs, as well as many VCR models manufactured by others, it is possible that it will not work with your VCR or may offer limited functions.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

About head cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

? If You Have Any Questions (cont'd)

Helpful terms and information

The following glossary is for your convenience in helping you better understand your VCR and its operation.

AFC (Automatic Frequency Control): Internal circuit that automatically maintains tuning.

NORM:
Normally, keep AFC at this setting.

SPCL:
If a station you want was "skipped" or reception is unsatisfactory with NORM, try this setting.

Auto Channel Set: Part of the "TUNER SET" function. When used, the VCR runs through (scans) all the channels on the VCR, automatically placing all channels receivable in your area into the VCR's memory.

AUX: Short for Auxiliary. The mode that allows your VCR to accept signals from an external video and/or audio component connected via the VIDEO IN and AUDIO IN connectors located on the front and rear panels.

AV: Short for Audio/Video. Often refers to separate audio (sound) and video (picture) signals which, when combined, make up a program.

AV Connection: Type of VCR-to-TV connection in which the VCR's AUDIO OUT and VIDEO OUT terminals are connected to the TV's AV IN terminals. Audio and video signals are sent separately and directly to the TV without having to modulate them into RF signals.

Bands: Two settings are available on the VCR so you can receive TV programming from either broadcaster.

TV:
Use this setting to receive VHF (Very High Frequency) and UHF (Ultra High Frequency) channels only. These are received by the tuner on channels 2 thru 13, and 14 thru 69, respectively.

CATV:
Short for Community Antenna TV, and commonly referred to as simply "Cable TV". Use this setting to receive channels on cable.

Cassette Adapter: Provided with most Compact VHS camcorders, and also available optionally, it allows VHS-C cassettes to be played (and recorded) on VHS VCRs just like full-size VHS cassettes.

Editing: Refers to dubbing or tape-to-tape editing (in which the contents of a tape in one video unit are copied to another tape in a second video unit), and to creative editing (in which video programming is actually modified to create something different from the original).

FDP: Short for Fluorescent Display Panel, which is the type of display panel used on this VCR.

Head: An electronic component which "writes" or "reads" video and audio signals on the tape.

Head Drum: A drum-shaped cylindrical assembly on which the video heads are located. It rotates at high speed, allowing the heads to "write" and "read" diagonal signal tracks on the video tape.

HQ (High Quality): An enhancement feature in the VCR circuitry which provides greater picture detail.

Mode: The status of the VCR (the operating feature being used) at any given time. (e.g. The tape is being rewound = the VCR is in the Rewind mode.)

Noise: Video noise; various types of picture distortion including pulsing, streaking, and "snow". Some types are unavoidable, such as during high-speed search, while others are the result of weak TV signals or clogged video heads.

On-Screen Menu System: VCR functions are easier to operate because they can be chosen, and required data can be input, while viewing special screens displayed on your TV.

Realtime Counter: The VCR's tape counter shows tape time precisely in hours, minutes and seconds (unlike simple sequential counters). The counter resets automatically when a cassette is inserted.

RF Coaxial Cable: Insulated round cable used to connect the VCR to the TV.

RF Connection: Type of VCR-to-TV connection in which the VCR's RF (Radio Frequency) OUT terminal is connected to the TV's ANTENNA terminal. The VCR essentially "broadcasts" the program to your TV on channel 3 or 4.

Special Effects: Playback modes other than normal-speed forward playback; includes still playback (stop motion), slow motion, and high-speed visual search.

Super VHS: A version of the VHS format which was developed to provide pictures with over 400 lines of horizontal resolution. This VCR can handle standard VHS signals only, and cannot record or play back Super VHS signals.

Tape Speeds: This determines how fast the tape travels during a recording.

SP (Standard Play):
Fast tape speed. Provides recording time of about 2 hrs. per T-120 cassette, and 2 hrs. 40 mins. per T-160 cassette. Most prerecorded software is recorded in SP.

EP (Extended Play):
Slow tape speed. Provides recording time of about 6 hrs. per T-120 cassette, and 8 hrs. per T-160 cassette. Useful for multiple-program recording on a single cassette.
Some manufacturers sell VCRs with an intermediate LP (Long Play) speed, which is not officially recognized as a VHS standard. This JVC VCR can play back LP-recorded tapes, but will not record in that tape speed.

Timer-Recording: Using the VCR's built-in clock/timer for automatic, unassisted start and stop of recording.

Tracking: The video head's ability to accurately "read" recorded signals (tracks) without deviating. When tracking deviation occurs, it appears on the screen as vertical jitter and grainy streaks. The Automatic Tracking function on this VCR is an extremely accurate system which greatly reduces the possibility of deviations.

Tuner: The part of the VCR that receives TV signals off the air and via cable. The Frequency Synthesized Tuner of this VCR is highly accurate, and is capable of receiving up to 181 channels.

VCR: Short for Video Cassette Recorder.

VCR Plus+™: A simplified system that allows timer-recording of a TV program simply by keying-in the code number for it.

VHS: The video format of this VCR, and the video format most widely used throughout the world.

Warranty

JVC

LIMITED WARRANTY

CONSUMER VIDEO 1-90

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL to be FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period")

PARTS	LABOR
1 YR	90 DAYS

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:
If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:
Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 537-5722.

If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:
This limited warranty provided by JVC does not cover:

1. Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
2. Initial installation and installation and removal for repair;
3. Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
4. Damage that occurs in shipment, due to act of God, and cosmetic damage;
5. Signal reception problems and failures due to line power surge;
6. Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
7. Accessories;
8. Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase);from the date of purchase);

There are no other express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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41 Slater Drive
Elmwood Park, New Jersey 07407

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:
Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.: ______ Serial No: ______

Purchase date: ______ Name of dealer: ______

Guide Channel List For VCR Plus+™

VCR Plus+™ Broadcast Channel Assignments

City	Broadcast Station (call letters)	VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your VCR receives the station on (VCR CH)
ALABAMA			
Birmingham	WCFT Tuscaloosa	30	33
	WBMG (CBS)	14	42
	WNAL Gadsden	23	44
	WAFF Huntsville	56	48
	WZDX Huntsville	26	54
ARIZONA			
Phoenix	KTVW (Univision)	32	33
	KUTP (Ind.)	31	45
CALIFORNIA			
Los Angeles	KEYT Santa Barbara	7	3
	KMEX (Univision)	14	34
	KMIR Palm Springs	4	36
	KESQ Palm Springs	7.25	42
	KHSC Ontario	26	46
	KVEA Corona	23	52
	KLCS (PBS)	17	58
	KRCA (Ind.)	20	62
	KADY Oxnard	16	63
Sacramento	KTVN Reno, NV	32	2
	KRNV Reno, NV	28	4
	KRCR Redding	8	7
	KIXE Redding	11	9
	KFCB Concord	27	42
	KBHK San Francisco	15	44
	47 Sacramento	29	47
	KSCH Stockton	25	58
	KFTL Stockton	56	64
San Diego	XETV (FOX)	11	6
	KFMB (CBS)	2	8
	KGTV (ABC)	7	10
	KNSD (NBC)	4.19	39
	KUSI (Ind.)	21	51
	KVEA Corona	23	52
San Francisco	KCBA Salinas	24	35
	KWBB (Ind.)	12	38
	KFCB Concord	15	42
	KBHK (Ind.)	16	44
	KMST Monterey	17	46
	KSTS San Jose	18	48
	KTEH San Jose	19	54
	KSCH Stockton	23	58
	KCSM San Mateo	21	60
Stockton	KTVN Reno, NV	32	2
	KRNV Reno, NV	28	4
	KRCR Redding	8	7
	KIXE Redding	11	9
	KFCB Concord	27	42
	KBHK San Francisco	15	44
	47 Sacramento	29	47
	KSCH (Ind.)	25	58
	KFTL (Ind.)	56	64
COLORADO			
Denver	KWBI (Educational)	5	41
	KCC (Spanish)	8	49
	KWHD Castle Rock	27	53
	KTBN (Religious)	10	57
	KUBD (Telemundo)	3	59
CONNECTICUT			
Hartford	WSBK Boston, MA	14	38
	WEDW Bridgeport	28	49
	WEDN Norwich	23	53
	WGBY Springfield, MA	16	57
DISTRICT OF COLUMBIA			
Washington, DC	WMPT/B Annapolis, MD	22	22/67
	WHSW/WJKL Baltimore, MD	65	24
	WITF Harrisburg, PA	18	33
	W42AJ (Telemundo)	80	42
	WPMT York, PA	86	43
	WBFF Baltimore, MD	10	45
	WMDT Salisbury, MD	30	47
	W48AW (Univision)	77	48
	WGCB Red Lion, PA	19	49
	WNVT Goldvein, VA	76	53
	WNUV Baltimore, MD	12	54
	WFPT Frederick, MD	40	62
	WTKK Manassas, VA	75	66
FLORIDA			
Melbourne	WPBT Miami	19	2
	WTVX Ft. Pierce	18	34
	WOFL Orlando	4	35
	WXEL W. Palm Beach	20	42
	WBSF(Ind.)	12	43
	WTOG Tampa	14	44
	WOGX Ocala	11	51
	WTGL Cocoa	16	52
	WACX Leesburg	7	55
Miami	WBFS (Ind.)	3	33
	WTVX Ft.Pierce	14	34
	WDZL (Ind.)	11	39
	WXEL W. Palm Beach	15	42
	WHFT (TBN)	8	45
	WSCV Ft. Lauderdale	13	51
Orlando	WPBT Miami	19	2
	WTVX Ft. Pierce	16	34
	WOFL (FOX)	4	35
	WXEL Palm Beach	20	42
	WBSF Melbourne	12	43
	WTOG Tampa	14	44
	WOGX Ocala	11	51
	WTGL Cocoa	16	52
	WACX Leesburg	7	55
Tampa	WTVX Fr. Pierce	18	34
	WOFL Orlando	4	35
	WTOG (Ind.)	14	44
	WNPL Naples	74	46
	W49A1	29	49
	WOGX Ocala	23	51
	WACX Leesburg	15	55
	WBSV Venice	56	62
West Palm Beach	WBSF Miami	3	33
	WTVX Ft. Pierce	14	34
	WDZL Miami	11	39
	WXEL (PBS)	15	42
	WHFT Miami	8	45
	WSCV Ft. Lauderdale	13	51
GEORGIA			
Atlanta	WNGM Athens	10	34
	WMGT Macon	16	41
	WGNX (Ind.)	4	46
ILLINOIS			
Chicago	WCFC (Ind.)	3	38
	WSNS (Telemundo)	4	44
INDIANA			
Indianapolis	WBAK Terre Haute	36	38
	WCLJ Bloomington	19	42
	WIPB Muncie	27	49
	WXIN (FOX)	50	59
KANSAS			
Kansas City	KSHB (FOX)	40	41
	KTKA Topeka	28	49
	KZKC/KSMO (Ind.)	29	62
KENTUCKY			
Louisville	WGRB Campbellsville	28	34
	WDRB (FOX)	66	41
	WYMT Hazard	20	57
LOUISIANA			
New Orleans	WNCL (FOX)	21	38
MASSACHUSETTS			
Boston	WSBK (Ind.)	14	38
	WGBX (PBS)	32	44
	WCVX Vinyard Haven	13	58
	WGOT Merrimack, NH	70	60
	WNAC Providence, RI	28	64
MARYLAND			
Baltimore	WMPT/B Annapolis	22	22/67
	WHSW/WJKL (HSN)	65	24
	WITF Harrisburg, PA	18	33
	W42AJ (Telemundo)	80	42
	WPMT York, PA	86	43
	WBFF (FOX)	10	45
	WMDT Salisbury	30	47
	W48AW (Univision)	77	48
	WGCB Red Lion, PA	19	49
	WNVT Goldvein, LA	76	53
	WNUV (Ind.)	12	54
	WFPT Frederick	40	62
	WTKK Manassas, VA	75	66
MICHIGAN			
Detroit	WGKI Cadillac	18	33
	WGVU Grand Rapids	21	35
	WADL Mount Clemens	3	38
	WUHQ Battle Creek	22	41
	SARNIA (CTV)	6	42
	CKCO Sarnia	26	42
	WSYM Lansing	27	47
	WAQP Saginaw	32	49
	WLAJ Lansing	16	53
	WINDSOR (CBEFT)	8	54
	WGPR (Ind.)	15	62
Grand Rapids/	WGVU (PBS)	2	35
Kalamazoo/ Battle Creek	WUHQ (ABC)	4	41
	WHME South Bend, IN	19	46
	WSYM Lansing	15	47
	WGVK (PBS)	69	52
	WTLJ Muskegon	18	54
	WFFT Ft. Wayne, IN	21	55
	WLLA (Ind.)	24	64
MINNESOTA			
St. Paul	KTMA (Ind.)	23	23/41
NEW YORK			
Buffalo	WNYB (TBN)	67	49
New York	WSBK Boston, MA	15	38
	WXTV Paterson NJ	12	41
	WNJU (Ind.)	6	47
	WEDW Bridgeport, CT	14	49
	WLIG Riverhead	10	55
Utica	WFXV (FOX)	33	28
NORTH CAROLINA			
Asheville	WUNF (PBS)	27	33
Charlotte	WTVI (PBS)	67	42
	WNRW Winston Salem	70	45
	WJZY Belmont	66	46
	WGGT Greensboro	69	48
Greensboro/	WTVI Charlotte	67	42
Winston Salem/High Point	WNRW (FOX)	70	45
	WJZY Belmont	66	46
	WGGT (Ind.)	69	48
Raleigh/Durham	WFCT Fayetteville	31	62
OHIO			
Cincinnati	WRGT Dayton	61	45
	WCET (PBS)	67	48
	WCVN Covington, KY	69	54
	WSTR (Ind.)	68	64
Cleveland	WUAB (Ind.)	65	43
	WEAD Akron	26	49
	WBNX Akron	31	55
Columbus	WOSU (PBS)	29	34
	WSFJ Newark	71	51
	WWAT Chillicote	66	53
OKLAHOMA			
Oklahoma City	KOCB (Ind.)	15	34
	KAUT (FOX)	19	43
OREGON			
Portland	KPDX Vancouver, WA	14	49
PENNSYLVANIA			
Harrisburg/Lancaster	WPIX New York, NY	70	11
	WITF (PBS)	31	33
	WPMT York	23	43
	WBFF Baltimore, MD	50	45
	WGCB Red Lion	82	49
	W53HJ	83	53
	WGBS Boston, MA	36	57
Philadelphia	WNJS Camden, NJ	23	23/52
	WYBE (PBS)	18	35
	WLVT Allentown	30	39
	WNJT Trenton, NJ	56	52
	WGBS Boston, MA	32	57
Pittsburgh	WYTV Youngstown, OH	18	33
	WPGH (FOX)	26	53
York	WPIX New York, NY	70	11
	WITF Harrisburg	31	33
	WPMT (FOX)	23	43
	WBFF Baltimore, MD	50	45
	WGCB Red Lion	82	49
	W53HJ	83	53
	WGBS Boston, MA	36	57
RHODE ISLAND			
Providence	WSBK Boston, MA	14	38
	WGBX Boston, MA	32	44
	WEDN Norwich, CT	23	53
	WCVX (Ind.)	13	58
	WNAC Vinyard Haven, MA	28	64
SOUTH CAROLINA			
Greenville/ Spartanburg	WNEH Greenwood	24	38
	WJZY Belmont, NC	66	46
	WRET (PBS)	31	49
TEXAS			
Dallas/Ft. Worth	KDAF (FOX)	3	33
	KXTX (Ind.)	6	39
	KFWD (Telemundo)	7	52
	KDTX (Ind.)	9	58
Houston	KHTV (Ind.)	5	39
	KXLN Rosenberg	4	45
	KTMD Galveston	6	48
	KTFH Conroe	7	49
San Antonio	KRRT Kerville	7	35
	KWEX (Univision)	8	41
	KVDA (Telemundo)	17	60
VIRGINIA			
Norfolk/Portsmouth/	WUND/C Chapel Hill NC	2	2/4
Newport News/ Hampton	WTVZ (FOX)	32	33
	WRLH Richmond	11	35
	WHTJ Charlottesville	16	41
	WJCB (Ind.)	17	49
	WTTG Washington, DC	50	5
	WVPT Staunton	61	51
	WCVW Richmond	14	57
WISCONSIN			
Milwaukee	WORF Rockford, IL	29	39
	WMSN Madison	40	47
	WDJT (Ind.)	61	58
WEST VIRGINIA			
Charleston	WPBY Huntington	14	33
	WPBD Portsmouth, OH	32	42
	WYMT Hazard, KY	30	57

VCR Plus+™ Cable Channel Assignments

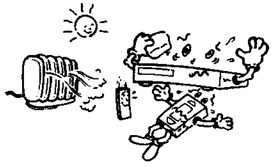
Station		VCR Plus+™ Assigned Guide Channel (GUIDE CH)	The channel your Cable Box receives the station on (VCR CH)
PT	Prime Ticket Network	27	
CSP	C-SPAN	29	
HBO	Home Box Office	33	
ESN	ESPN	34	
AMC	American Movie Classics	35	
DSC	The Discovery Channel	37	
NIK	Nickelodeon	38	
A&E	Arts & Entertainment Network	39	
SHO	Showtime	41	
CNN	Cable News Network	42	
TBS	TBS SuperStation	43	
USA	USA Network	44	
MAX	Cinemax	45	
LIF	Lifetime	46	
FAM	The Family Channel	47	
MTV	Music Television	48	
TNN	The Nashville Network	49	
	The Learning Channel	51	
TNT	Turner Network Television	52	
DIS	The Disney Channel	53	
BRV	Bravo	54	
WGN	WGN (Chicago; Ind.)	55	
BET	Black Entertainment Television	57	
TMC	The Movie Channel	58	
SC	SportsChannel	59	
WOR	WWOR (New York; Ind.)	60	
	Video Hits 1	62	
	Nostalgia	64	

NOTE:

- Please check in your TV book or newspaper and fill in the blank spaces as they apply to your area and TV system.

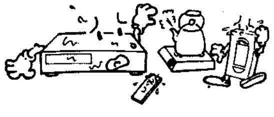
Precautions

Please follow these safety precautions. Not doing so may result in damage to the VCR, remote control, or video cassette.

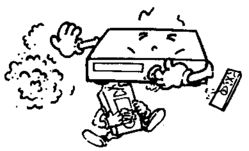


Avoid extreme heat and direct sunlight

Avoid extreme cold

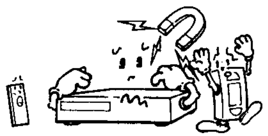


Avoid extreme humidity



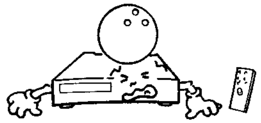
Avoid dust

Avoid places subject to vibrations

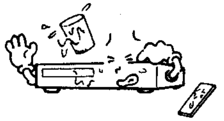


Avoid strong magnetic fields

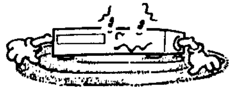
Do not block the VCR's ventilation openings



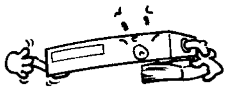
Do not place anything heavy on the VCR or remote control



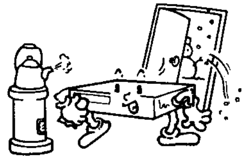
Do not place anything which might spill on top of the VCR or remote control



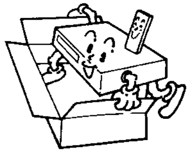
Do not place the VCR on cushions, pillows, or thick carpeting



Use the VCR in a stable, horizontal position only

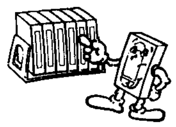


Beware of moisture condensation
Moisture in the air will condense on the VCR when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the VCR's power turned on for a few hours to let the moisture dry.



When transporting

- Be sure to remove cassette from VCR before packing
- Avoid violent shocks to the VCR during packing and transport



Place cassettes in cassette cases and store vertically

For Servicing

HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-537-5722

Dear customer:
In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States, call 1-800-537-5722 for your authorized servicer. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.

FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road
Fairfield, NJ 07004-2105
(201) 808-9279

1500 Lakes Parkway
Lawrenceville, GA 30243-5357
(404) 339-2522

705 Enterprise Street
Aurora, IL 60504-8149
(708) 851-7855

5665 Corporate Avenue
Cypress, CA 90630-0024
(714) 229-8011

10700 Hammerly, Suite 110
Houston, TX 77043
(713) 935-9331

2969 Mapunapuna Place
Honolulu, HI 96819-2040
(808) 833-5828

230 Eliot Street
Ashland, MA 01721-2377
(508) 881-5923

14505 Commerce Way
Miami Lakes, FL 33016-1512
(305) 362-6252

890 Dubuque Avenue
South San Francisco, CA 94080-1804
(415) 871-2666

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
107 Little Falls Road
Fairfield, NJ 07004-2105

If you ship the product...

Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.

Don't service it yourself.

CAUTION

To prevent electrical shock, do not open the cabinet.
No user serviceable parts inside.
Refer servicing to qualified service personnel.

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer. Or from the 48 Continental United States call toll free: 1-800-882-2345.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out four screws Ⓐ.
2. Slide the side panels (L) and (R) in directions ① and ②, and remove them. (Only use for HR-S6900U)
3. Take out one screw Ⓑ.
4. Tilt up the rear end of the top cover in direction ③, then remove the top cover.

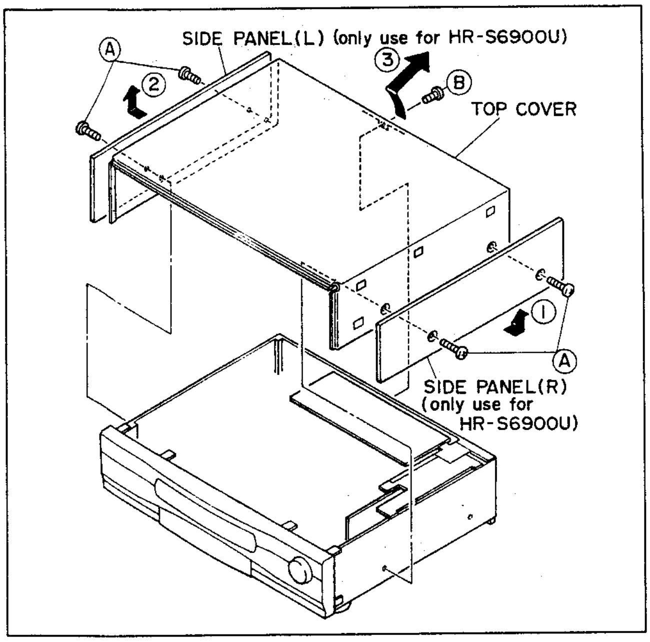

Ⓐ
SIDE PANEL(L) (only use for HR-S6900U)
③
②
Ⓑ
TOP COVER
①
Ⓐ
SIDE PANEL(R) (only use for HR-S6900U)

Fig. 1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage four tabs ⓐ of the panel assembly from the upper side of the chassis in direction ①.
3. Disengage two tabs ⓑ of the both side of front panel assembly and disengage three tabs ⓒ from bottom of the chassis.
4. Disconnect one connector ⓓ and pull the front panel assembly to forward direction.

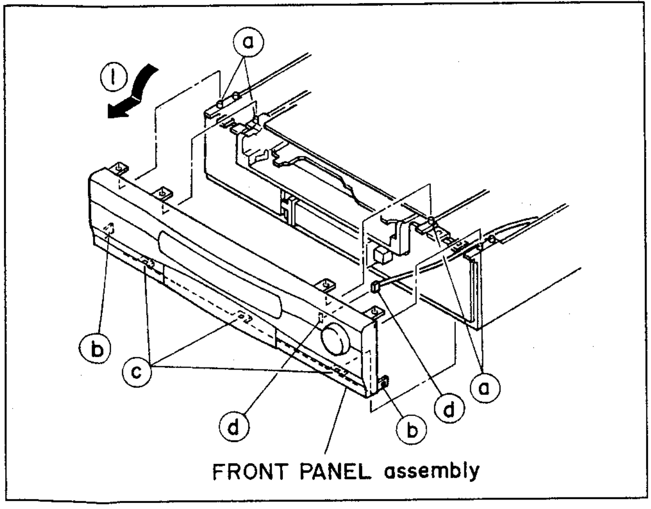

ⓐ
①
ⓑ
ⓒ
ⓓ
ⓑ
ⓓ
ⓐ
FRONT PANEL assembly

Fig. 1-2A Front panel assembly

Note: ***Install the front panel assembly as shown in Fig. 1-2B and reengage the tabs.***
Supply power and use a spare cassette to check for normal loading and eject operations.

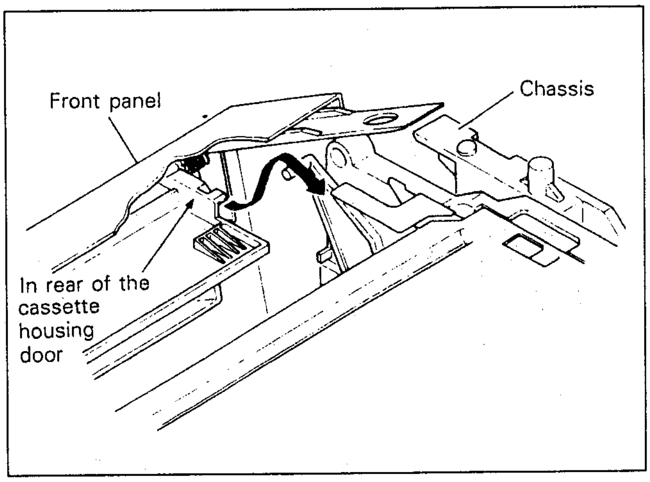

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-2B Cassette housing door

1.1.3 Bottom cover

1. Remove the top cover.
2. Take out two screws Ⓒ.
3. Disengage three tabs ⓐ, slide the bottom cover in direction ① and remove the bottom cover and two earth plates.

Note: ***Install the bottom cover, set two earth plates and reengage three tabs ⓐ, then tighten two screws Ⓒ.***

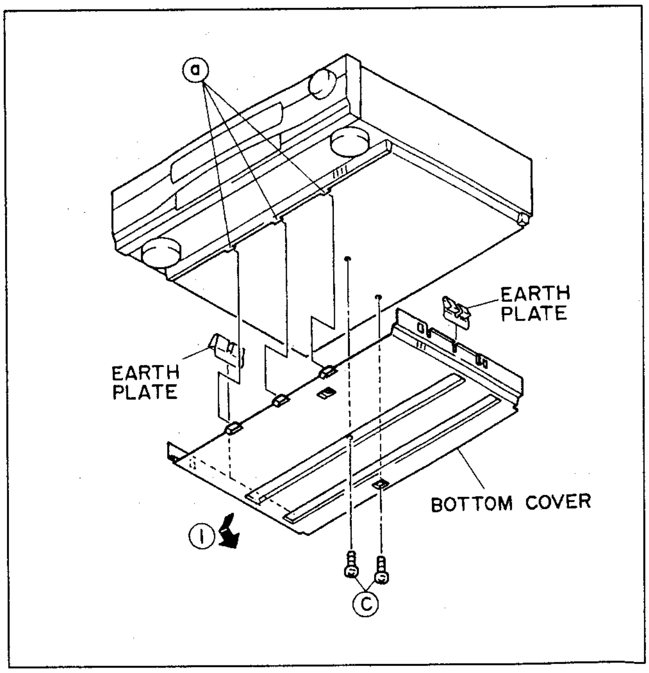

ⓐ
EARTH PLATE
EARTH PLATE
BOTTOM COVER
①
Ⓒ

Fig. 1-3 Bottom cover

1.1.4 TUNER/MIC board assembly

1. Remove the top cover.
2. Take out two screws Ⓓ.
3. Take out five screws Ⓔ and tilt up the TUNER/MIC board assembly in direction ① and remove it.

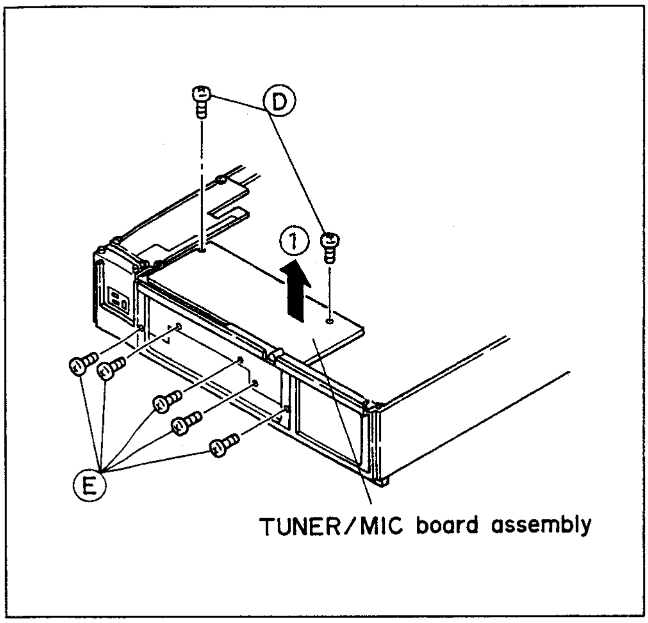

Ⓓ
①
Ⓔ
TUNER/MIC board assembly

Fig. 1-4A TUNER/MIC board assembly-1

4. For check and repairs, set up the TUNER/MIC board assembly to rear of chassis at ⓐ positions as shown in Fig. 1-4B.

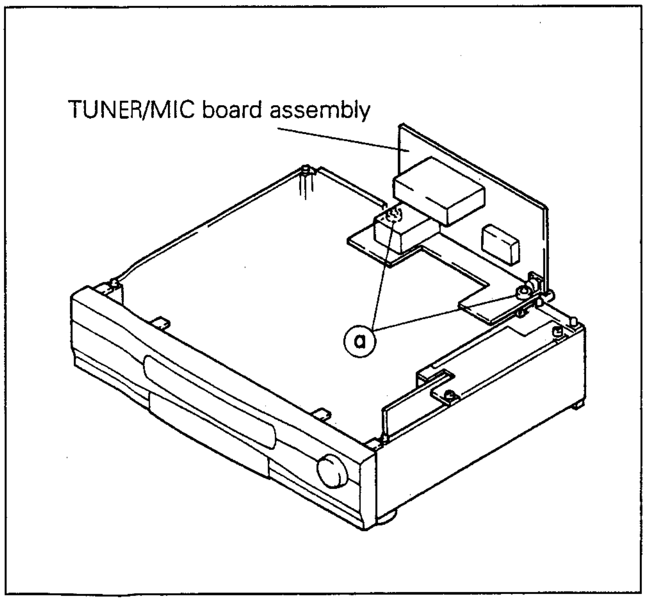

TUNER/MIC board assembly
ⓐ

Fig. 1-4B TUNER/MIC board assembly-2

1.1.5 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out four screws Ⓕ, tilt up the SWITCHING REGULATOR board assembly in direction ① and remove it.

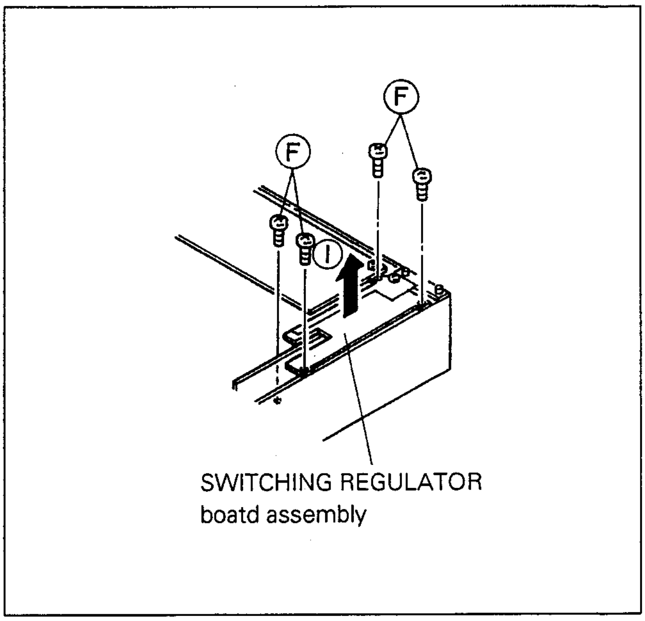

Ⓕ
Ⓕ
①
SWITCHING REGULATOR
boatd assembly

Fig. 1-5 SWITCHING REGULATOR board assembly

1.1.6 REC board assembly and PRE board assembly

1. Remove the top cover.
2. Disconnect four connectors ⓐ and take out two screws Ⓖ.
3. Tilt up the REC board assembly in direction ① and disconnect two connectors ⓑ.
4. Remove PRE board assembly and REC board assembly.

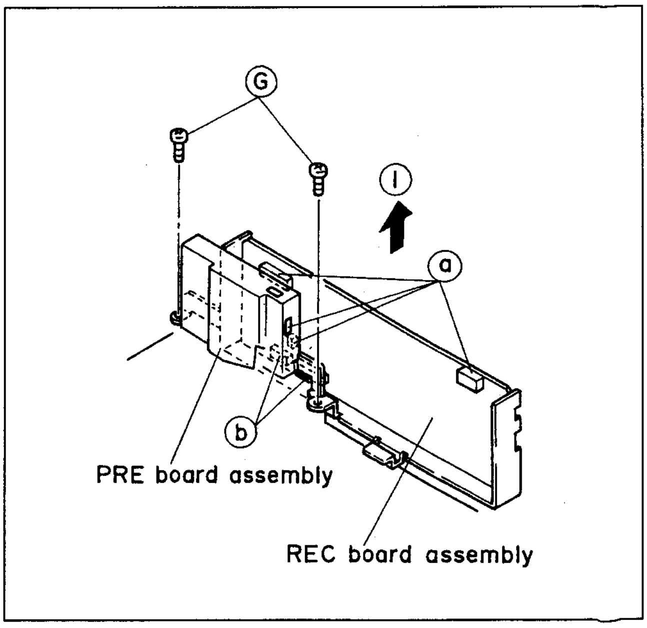

Ⓖ
①
ⓐ
ⓑ
PRE board assembly
REC board assembly

Fig. 1-6 REC board assembly and PRE board assembly

1.1.7 DISPLAY board assembly and SWITCH/JACK board assembly

1. Remove the top cover and front panel assembly.
2. Disconnect one connector ⓐ.
3. Disengage four tabs ⓑ and remove DISPLAY board assembly.
4. Disengage two tabs ⓒ and remove SWITCH/JACK board assembly.

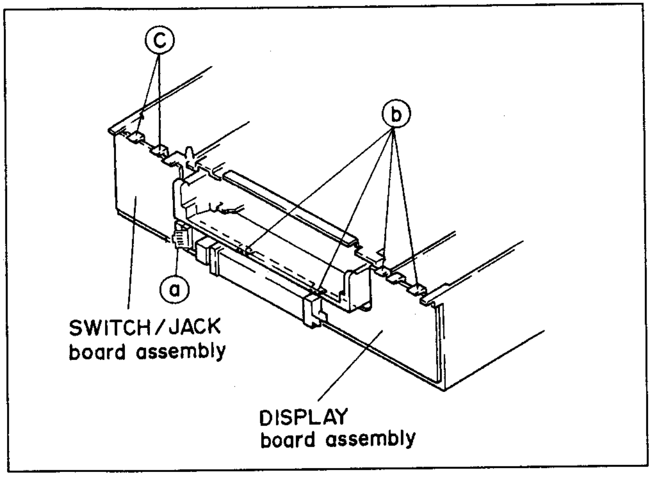

c
b
a
SWITCH / JACK
board assembly
DISPLAY
board assembly

Fig. 1-7 DISPLAY board assembly and SWITCH/JACK board assembly

1.1.8 Main deck assembly

1. Remove top cover, front panel assembly, DISPLAY board assembly and SWITCH/JACK board assembly.
2. Disconnect four connectors ⓐ.
3. Take out one screw Ⓗ, two screws Ⓙ and two screws Ⓚ.
4. Tilt up the main deck assembly in direction ① and remove it.

Notes:

- ***For check the bottom side of main deck assembly, take out screws Ⓗ, Ⓙ and Ⓚ, and set up the front side of chassis as shown in Fig. 1-8B.***
- ***Install the main deck assembly, use care not to damage flat wires and put the wiring correctly. If these are incorrect, the mode motor will not rotate properly.***

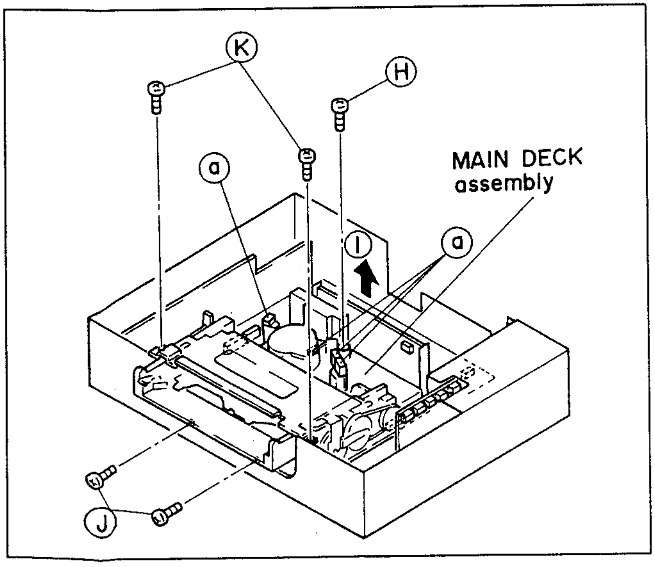

K
H
a
MAIN DECK
assembly
1
a
J

Fig. 1-8A Main deck assembly-1

5. For checks and repairs, set up the main deck assembly to front of chassis as shown in Fig 1-8B

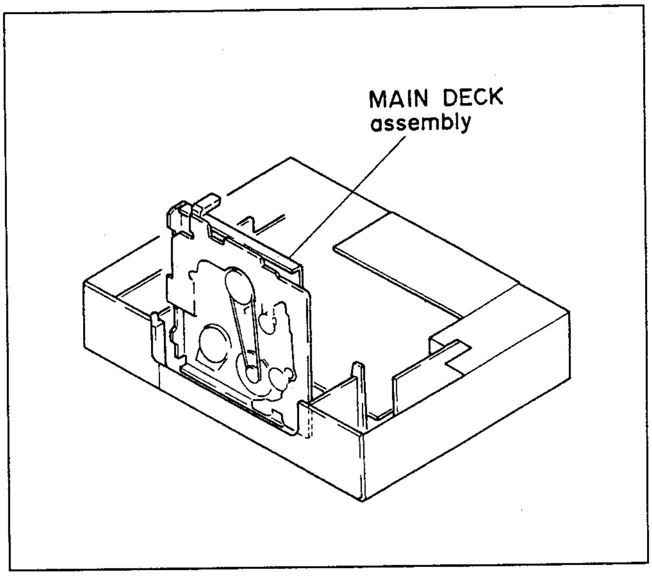

MAIN DECK
assembly

Fig. 1-8B Main deck assembly-2

1.1.9 DECK TERMINAL board assembly

1. Remove the top cover and main deck assembly.
2. Take out four screws Ⓛ.
3. Remove the capstan belt and washer.
4. Disconnect one connector ⓐ, disengage two tabs ⓑ, and remove the DECK TERMINAL board assembly.

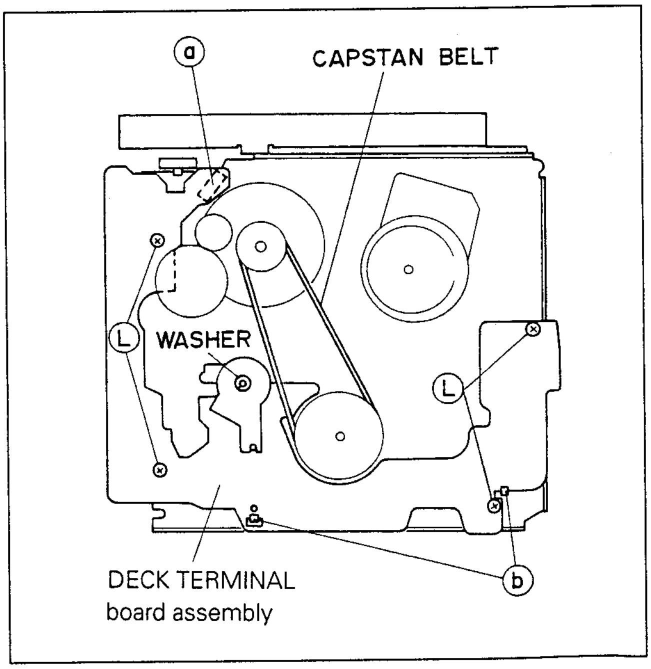

a
CAPSTAN BELT
L
WASHER
L
DECK TERMINAL
board assembly
b

Fig. 1-9 DECK TERMINAL board assembly

1.1.10 Cassette housing assembly

Note: ***When install or remove the cassette housing assembly, be sure set the Eject position of mechanism condition.***

1. Remove the top cover and front panel assembly.
2. Take out two screws Ⓜ and two screws Ⓝ, tilt up the cassette housing assembly in direction ①.
3. Disengage two tabs ⓐ and remove the cassette housing assembly.

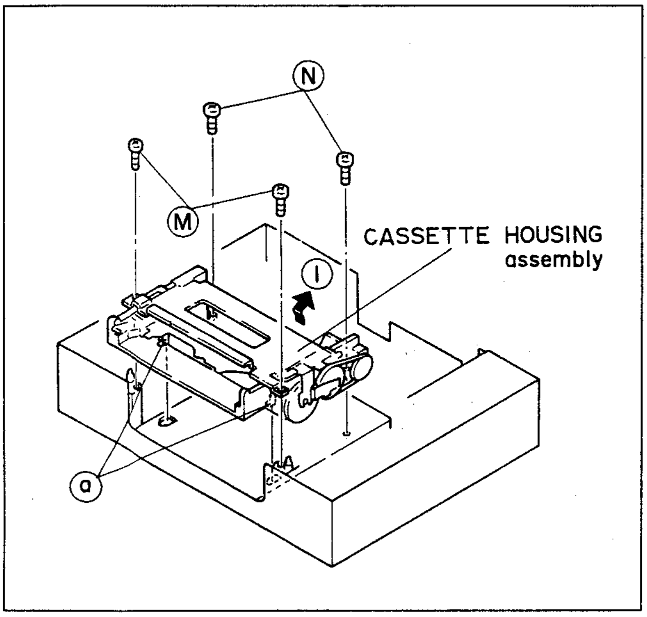


Fig. 1-10 Cassette housing assembly

1.1.11 MAIN board assembly

1. Remove the top cover, front panel assembly, TUNER/MIC board assembly, main deck assembly and cassette housing assembly.
2. Take out four screws Ⓟ, tilt up the MAIN board assembly in direction ① and remove it.

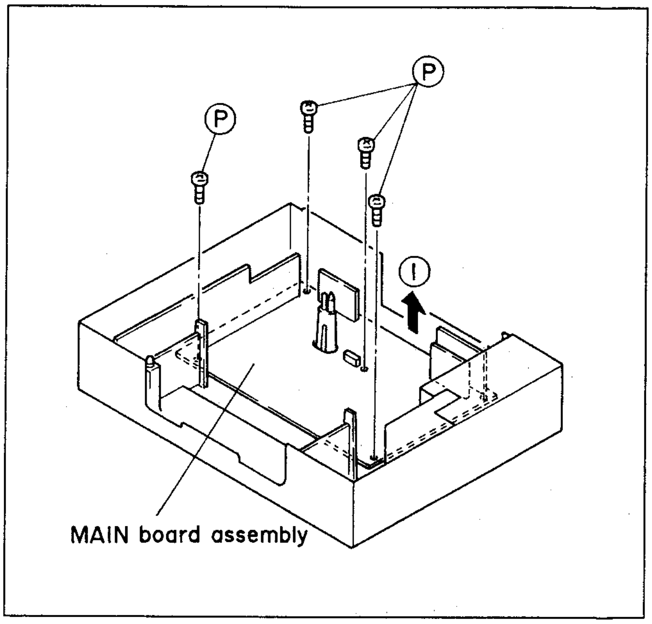


Fig. 1-11 MAIN board assembly

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

1) Disconnect VCR from AC power before soldering.
2) Avoid imparting stress to wires when disengaging connectors.
3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4) Use care not to damage tabs, claws, etc. during repairs.
5) Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6) When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.
   See Sec.1 DISASSEMBLY.

2.1.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1) Disconnect the power cord from the AC outlet, and remove the top cover, the front panel and the cassette housing assembly in this order.
2) Disable the photo transistor sensor (END SENSOR, START SENSOR) on the main-deck by applying an opaque cover.
3) Set the CASSETTE switch (push switch) to ON.
4) Release the LED GUIDE from the hook while removing it.
5) Connect the pwer cord to the AC outlet and turn on the POWER switch. Select the desired operation modes with the operation buttons or remote control unit. However, notice that without tape, setting for the RWD or FF direction modes produces the Stop mode after a few seconds later and power supply is cut off due to absence of the reel sensor output.

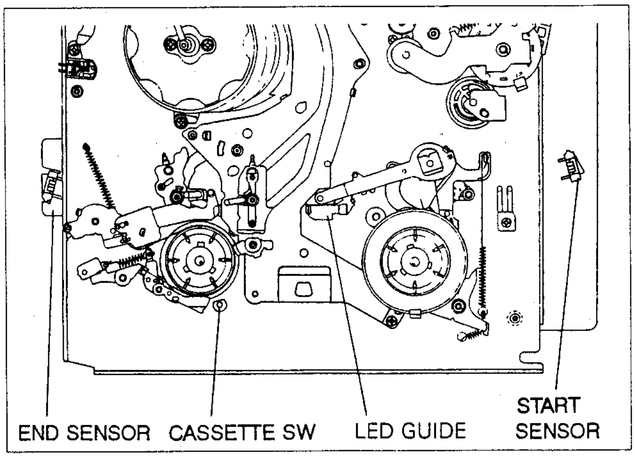


Fig. 2-1-1 Checking without cassette housing

2.1.3 Manual removal of loaded tape

In event of failure which leaves the tape in the loaded position, remove it by the following procedure.

1) Disconnect the power cord from the AC outlet, and remove the top cover and the front panel in this order.
2) Turn the loading motor on the main deck by hand in the direction of the arrow for unloading the tape. At that time, pay careful attention to the tape not to get soiled with grease.
3) Remove the cassette housing assembly.
4) Ture the reel of the cassette tape to take in the slack of the tape. During this work, hold down the cassette tightly by hand, otherwise it may damage the tape.
5) Take off the cassette from the cassette housing.

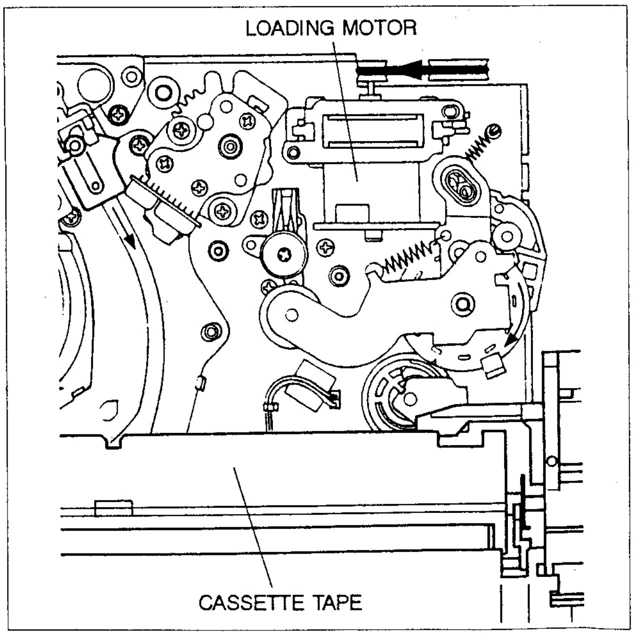


Fig. 2-1-2 Manual removal of loaded tape

2.1.4 Test equipment

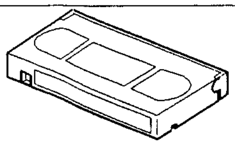
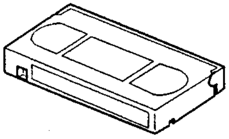
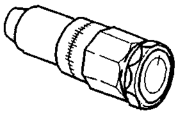
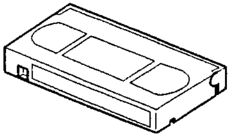
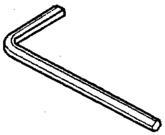
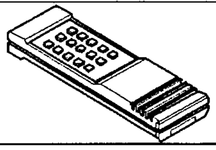
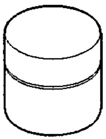
Alignment tape (SP) MH-1	Alignment tape (EP) MH-1L	Torque gauge PUJ48075-2	Back tension cassette gauge PUJ48076-2
			
A/C head positioning tool PTU94010	Line head wrench PGJ04033	Presetting unit PTU94008	Grease PTU94014A
			

Table 2-1-1

2.2 MAIN MECHANISM PARTS

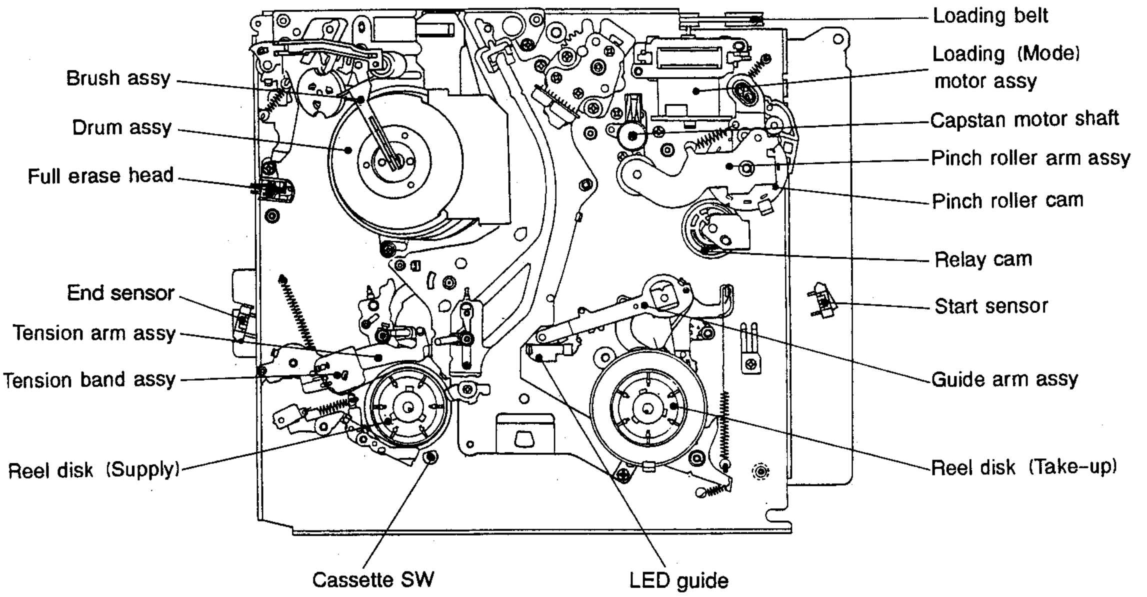

Brush assy
Drum assy
Full erase head
End sensor
Tension arm assy
Tension band assy
Reel disk (Supply)
Cassette SW
LED guide
Loading belt
Loading (Mode) motor assy
Capstan motor shaft
Pinch roller arm assy
Pinch roller cam
Relay cam
Start sensor
Guide arm assy
Reel disk (Take-up)

Fig. 2-2-1 Top view of main-deck

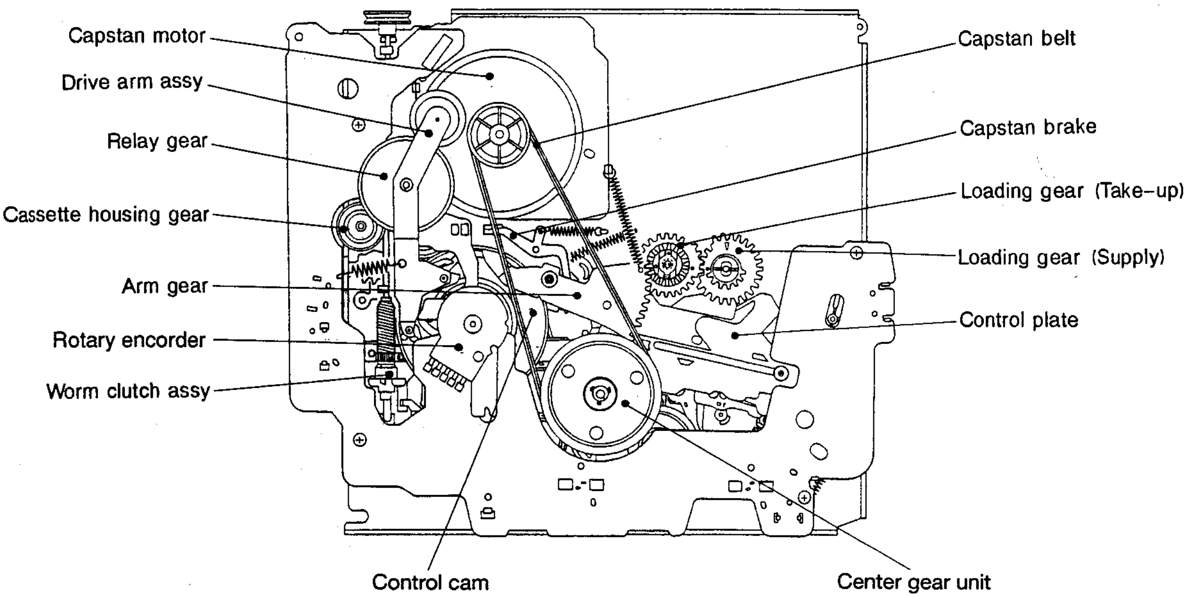

Capstan motor
Drive arm assy
Relay gear
Cassette housing gear
Arm gear
Rotary encorder
Worm clutch assy
Control cam
Center gear unit
Capstan belt
Capstan brake
Loading gear (Take-up)
Loading gear (Supply)
Control plate

Fig. 2-2-2 Bottom view of main-deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with finger-tip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).
For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.
Before oiling, clean with alcohol.
Apply one or two drops of oil.
Avoid excess oil.

1) Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 2-2-1

2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: ***Stir grease that has been stored for an extended period.***

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.
Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation hours						
		250	500	750	1000	1250	1500	2000
Tape Transport	Upper drum assy	★	★	★	○	★	○	○
	A/C head	★			○			○
	Pinch roller arm assy	★	★	★	★	★	★	★
	Full erase head							
	Tension arm assy							
	Lower drum motor assy							
	Capstan motor (Shaft)							
Drive	Capstan motor							○
	Capstan belt			○				○
	Mode motor assy							○
	Loading belt			○				○
	Reel disk (Supply)							○
	Reel disk (Take-up)							○
	Clutch assy							○
	Worm clutch assy							○
Brake	Sub brake assy			○				○
	Main brake assy			○				○
	Sub brake			○				○
	Tension band assy							○
Others	Brush assy			★				○
	Tension band assy							○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 MECHANISM DISASSEMBLY & INSTRATION

2.4.1 Disassembly of Mechanism

1. Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and instration the mechanism, and it is suggested to set the mechanism to this mode before disassembly and instration. The exclusive mechanism operation mode is not generally used and becomes available by manual setting only.

Note: *Although the mechanism can be disassembled as it is set in the EJECT mode, it is recommended to set it to the exclusive mechanism operation mode.*

2. Setting of exclusive mechanism operation mode

Turn the Pinch Roller Cam clockwise as viewed from the upper side so as to rotate the Loading Motor in the direction of the arrow, while adjusting positions of the Pinch Roller Cam and the Relay Cam so that their markings coincide with each other as shown in Fig. 2-4-2.
At that time, both the pole bases should be moved to the full extent in the direction of the Reel Base Assembly (supply side).

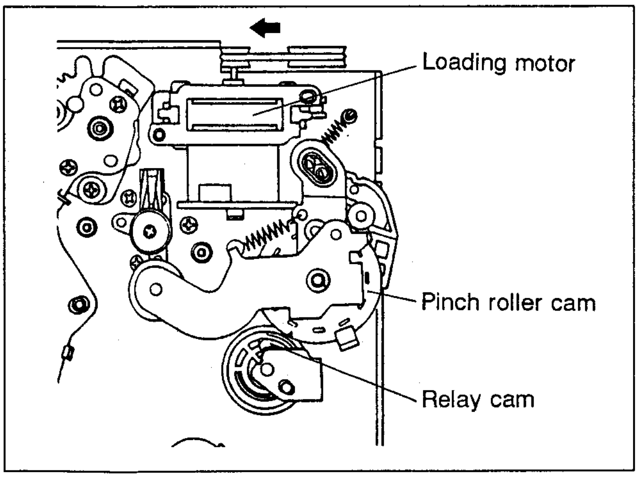


Fig. 2-4-1

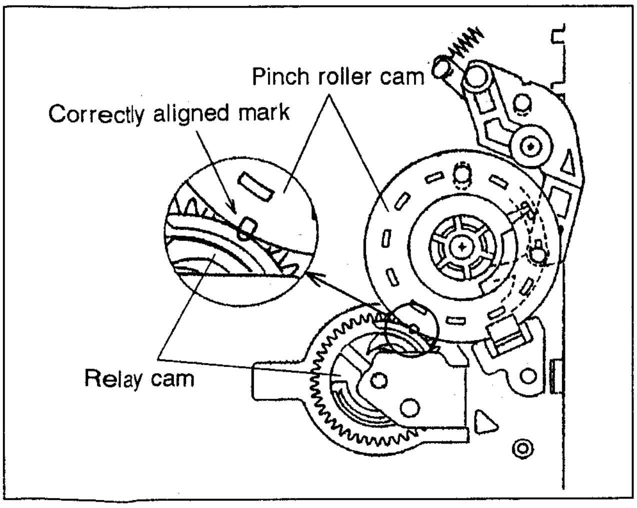


Fig. 2-4-2

3. Disassembling of mechanism assembly in the lower side

1) Unsolder the Rotary Encoder from the DECK TERMINAL board (at five points) and remove the slit washer (1'). Release the Rotary Encoder from the hooks in the both sides while removing it for replacing.
When the Rotary Encoder need not to replace, remove the slit washer only and take off the Rotary Encoder as it is soldered to the DECK TERMINAL board.
2) Remove the tension spring (2") and the slit washer (2') while taking off the Drive Arm Assembly.
3) Remove the Relay Gear.

No.	Part name
1	Rotary encoder
1'	Slit washer
2	Drive arm assembly
2'	Slit washer
2"	Tension spring
3	Relay gear

Table 2-4-1

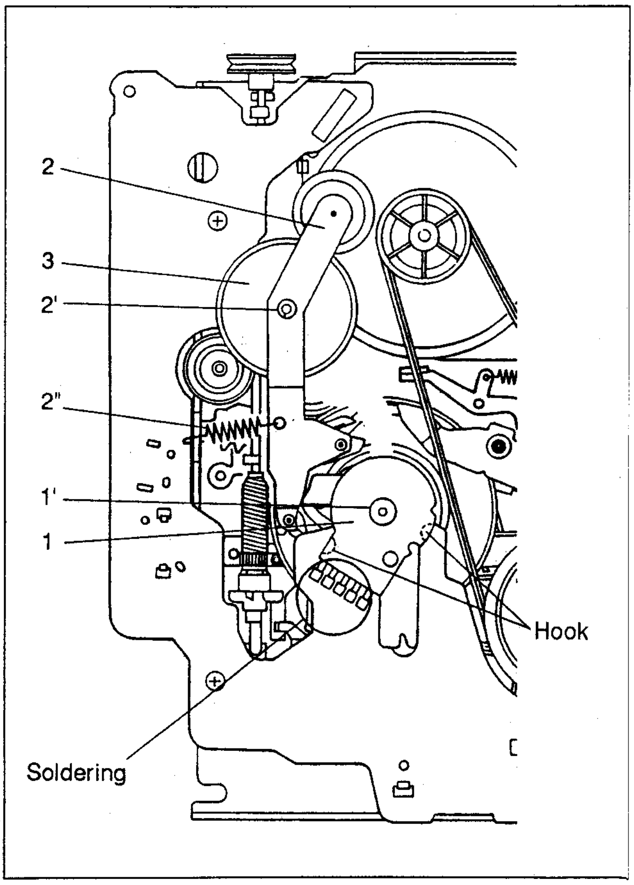


Fig. 2-4-3

4) Disengage the CAPSTAN belt.
5) Remove the 4 screws (5'), disconnect the connector (CN2), and disengage the 2 hooks. Then remove the DECK TERMINAL board.

No.	Part name
4	Belt
5	Deck terminal board assembly
5'	Screws (x4)
5"	Connector (CN2)

Table 2-4-2

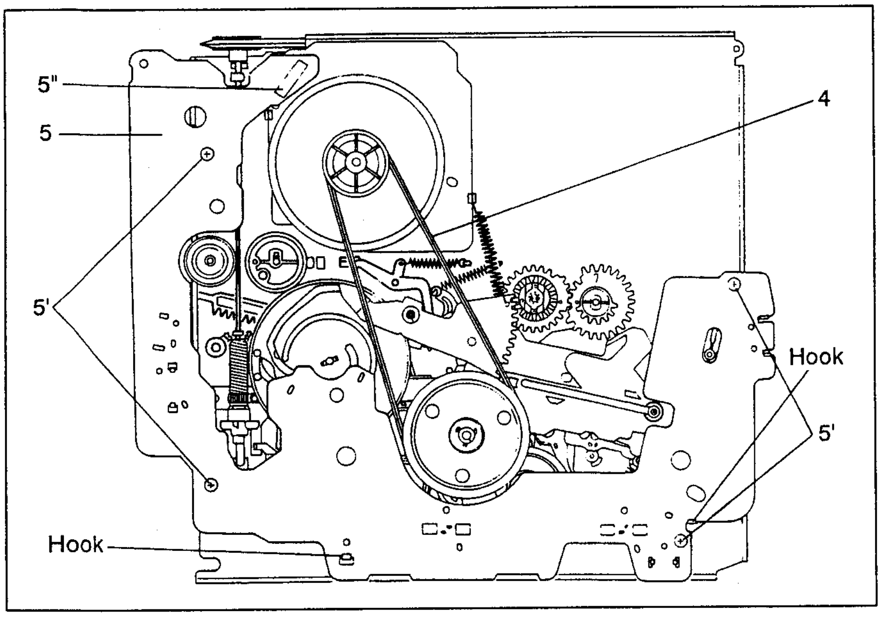


Fig. 2-4-4

6) Remove the slit washer (6') and the tension spring (6") while taking off the Arm Gear.
7) Expand the two center hooks outwards while removing the Control Cam. Carefully do this work not to damage the hooks.
8) Remove the slit washer (8') and the Center Gear Unit.
9) Disengage the loading belt, and release the Worm Clutch Assembly from the 3 hooks while taking it off. Carefully do this work not to damage the hooks.
10) Remove the slit washer (10') and the Control Plate.

No.	Part name
6	Arm gear
6'	Slit washer
6"	Tension spring
7	Control cam
8	Center gear unit
8'	Slit washer
9	Worm clutch assembly
9'	Belt
10	Control plate
10'	Slit washer

Table 2-4-3

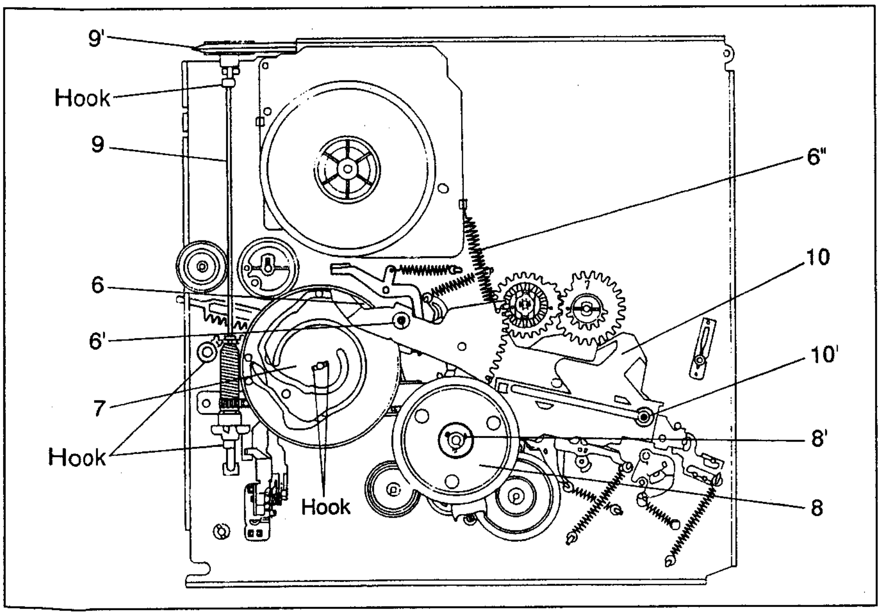


Fig. 2-4-5

11) Disengage the tension spring (11') and remove the Capstan Brake.
12) Disengage the tension spring (12') by a side, and release the Slide Plate from the two hooks while taking it off.
13) Remove the slit washer (13') and the Cassette Housing Gear.
14) Spread out the center hook of the Relay Cam with care not to damage the hook, and remove the Relay Cam.
15) Pull out the S-switch (S-VHS) pin, which requires careful attention not to lose it because it becomes free when the DECK TERMINAL board is removed.
16) Set the Slide Base Assembly free, then move it upwards while removing it.
17) Remove the Reset Lever.
18) Remove the Idler Unit.
19) Disengage the tension spring (19') by a side, and remove the Idler Cancel Lever.
20) Remove the slit washer (20') of the Clutch Gear Unit (TU side) and take it off.
21) Remove the slit washer (21') of the Clutch Gear Unit (SUP side) and take it off.
22) Expand the two outer hooks in the center of the Loading Gear (TU side) and take off the Loading Gear. Carefully do this work not to damage the hooks.
23) Remove 1 screw (23') and the arm of the Loading Gear Assembly (SUP side), and release the Loading Gear Assembly (SUP) from the 2 hooks by expanding them while taking it off in the free status. During this work, pay careful attention to the hooks not to damage them.
24) Disengage the tension spring (24') by a side and escape the Main Brake Assembly from the center hook while taking it off.
25) Disengage the tension spring (25') by a side and take off the Take-up Lever.
26) Disengage the tension spring (26') by a side and escape the Off Lever Assembly from the center hook while taking it off.
27) As the Slider Assembly on the upper side of the deck is removed, disengage the tension spring (27') and expand the center hook while taking off the Tension Lever Assembly.
28) Disengage the tension spring on the upper side of the deck, and mode the spring base upwards to remove it.
29) Remove the 3 screws from the upper side of the deck, release the Capstan Motor from the 2 hooks on the lower part of the deck while taking off the motor.

No.	Part name
11	Capstan brake assembly
11'	Tension spring
12	Slide plate
12'	Tension spring

Table 2-4-4

No.	Part name
13	Cassette housing gear
13'	Slit washer
14	Relay cam
15	S-SW pin (S-VHS)
16	Slide base assembly
17	Reset lever
18	Idler unit
19	Idler cancel lever
19'	Tension spring
20	Clutch gear unit (TU)
20'	Slit washer
21	CLutch gear unit (SUP)
21'	Slit washer
22	Loading gear (TU)
23	Loading gear assembly (SUP)
23'	Screw
24	Main brake assembly (SUP)
24'	Tension spring
25	Take-up lever
25'	Tension spring
26	OFF lever assembly
26'	Tension spring
27	Tension lever assembly
27'	Tension spring
28	Spring base
29	Capstan Motor

Table 2-4-5

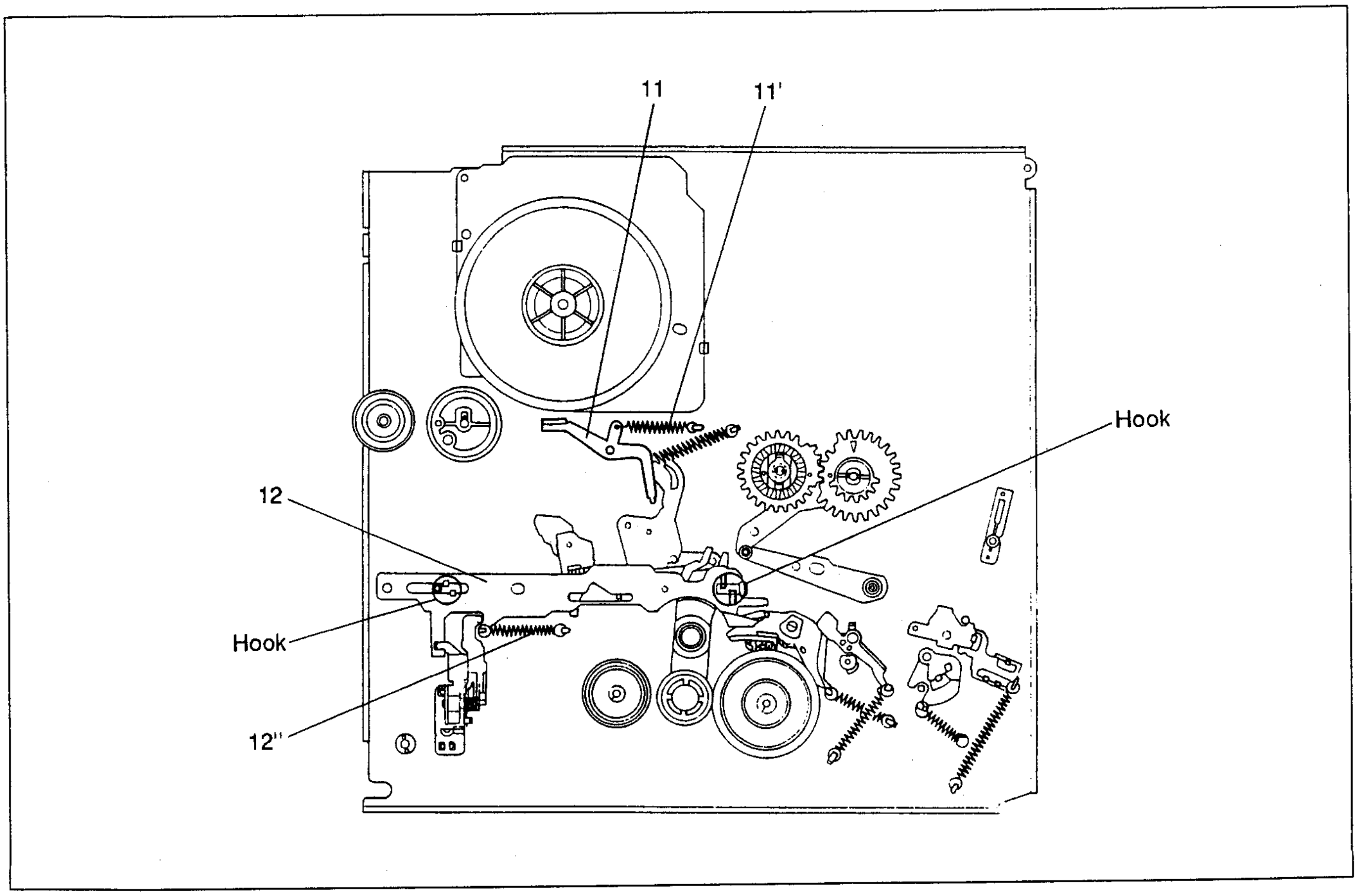

11
11'
Hook
12
Hook
12''

Fig. 2-4-6

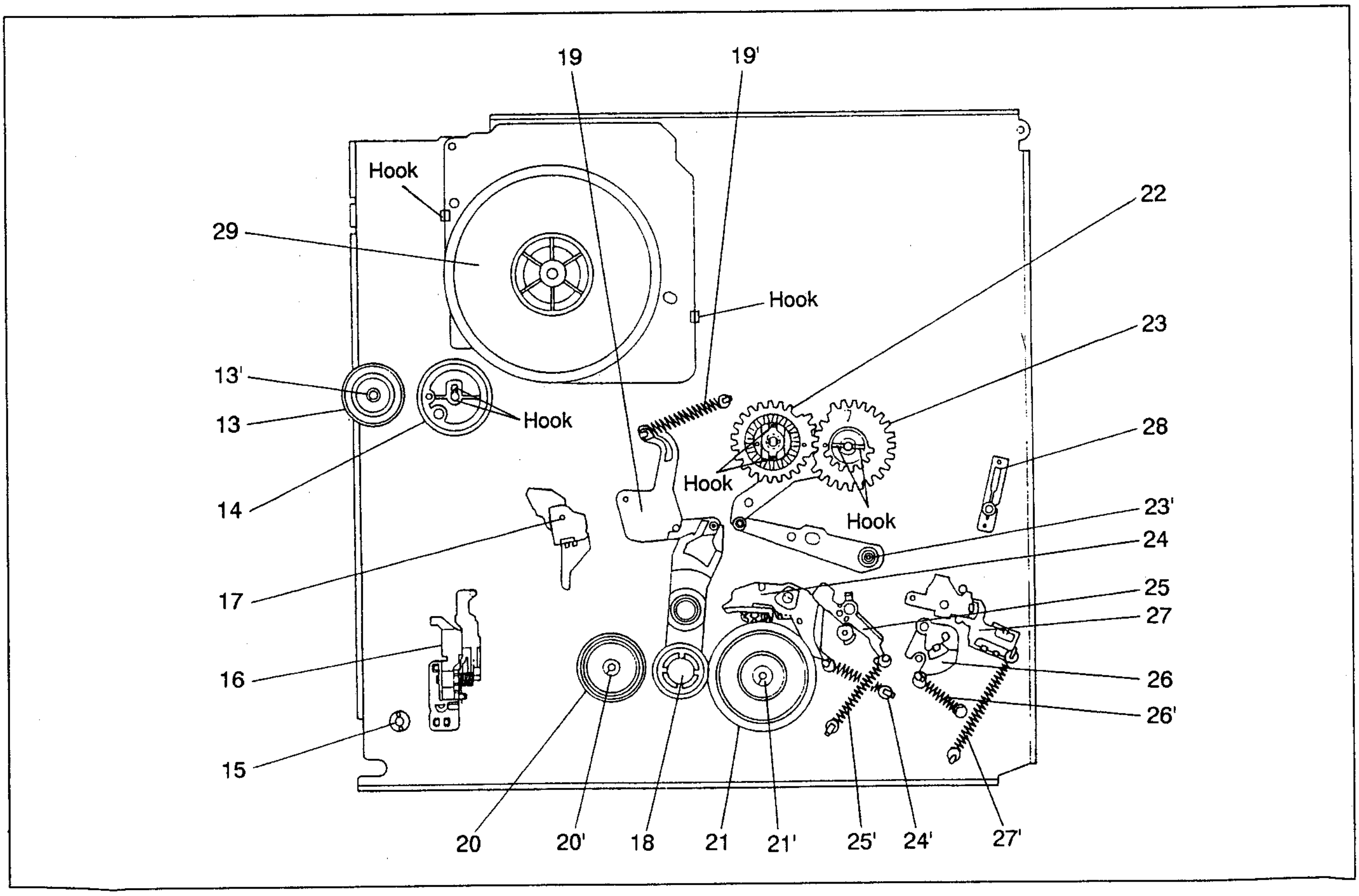

19
19'
Hook
29
Hook
22
23
13'
13
Hook
14
28
Hook
Hook
23'
24
17
25
27
16
26
26'
15
20
20'
18
21
21'
25'
24'
27'

Fig. 2-4-7

4. Disassembling of mechanism assembly in the upper side

1) Remove the slit washer (1'), the Pinch Roller Arm Assembly and the compression spring (1") in this order.
2) Release the Pinch Roller Cam from the hook while taking it off.
3) Disengage the compression spring (3') and take off the Pinch Roller Lever.

No.	Part name
1	Pinch roller arm assembly
1'	Slit washer
1"	Compression spring
2	Pinch roller cam
3	Pinch roller lever
3'	Compression spring

Table 2-4-6

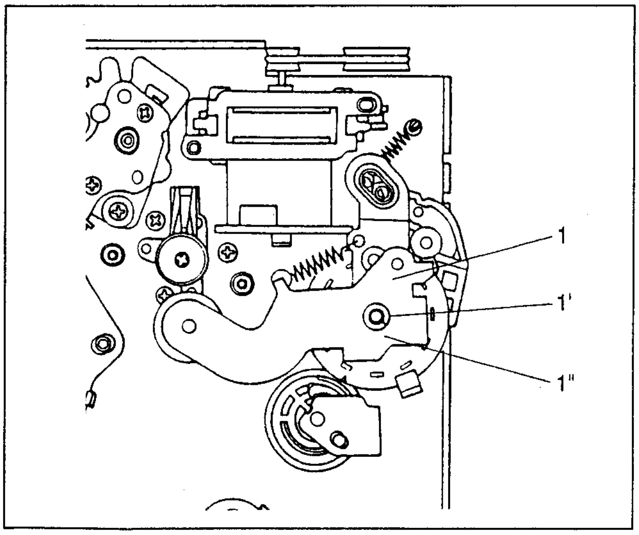


Fig. 2-4-8

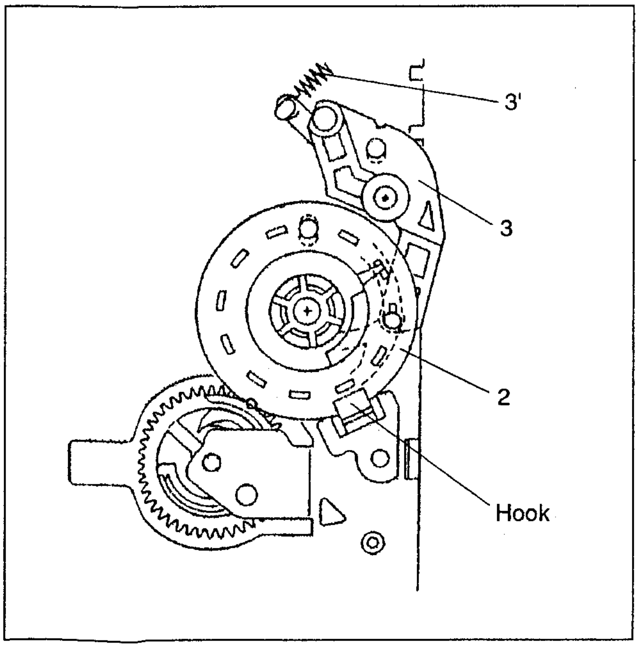


Fig. 2-4-9

2.4.2 Instration of mechanism

1. Precaution before reassembling mechanism

Check that all the mechanism parts on the upper side of the deck are set in the exclusive mechanism operation mode.

2. Instration of mechanism assembly parts in the lower side

1) Install the Capstan Motor and tighten it with 3 screws from the upper side of the deck.
2) Install the Spring Base and engage the tension spring on the upper side of the deck.
3) Install the Tension Lever Assembly and engage the tension spring (3').
4) Install the Off Lever Assembly and engage the tension spring (4').
5) Install the Take-up Lever and engage the tension spring (5').
6) Install the Main Brake (SUP side) and engage the tension spring (6').
7) Install the Loading Gear Assembly (SUP side) and fix the arm and the Pole Base Assembly with a screw (7').
8) Confirm the mechanism mode that is set to the exclusive mechanism operation mode, and install the Loading Gear (TU side) with the hole glined with the hole on the Loading Gear Assembly (SUP side) as the Tension Arm is returned to the front side.
9) Install the Clutch Gear (SUP side) and the slit washer (9') with care not to contact with the Main Brake.
10) Install the Clutch Gear Unit (TU side) and the slit washer (10').
11) Install the Idler Cancel Lever and engage the tension spring (11').
12) Install the Idler Unit.
13) Install the Reset Lever.
14) Install the Slide Base Assembly with care of re-engaging the tension spring on the upper side of the deck.
15) Install the S-switch (S-VHS) pin.
16) Install the Relay Cam whith the hole aligned with hole on the chassis.
17) Install the Cassette Housing Gear and the slit washer (17').

No.	Part name
1	Capstan Motor
2	Spring base
3	Tension lever assembly
3'	Tension spring
4	OFF lever assembly
4'	Tension spring
5	Take-up lever
5'	Tension spring
6	Main brake assembly (SUP)
6'	Tension spring
7	Loading gear assembly (SUP)
7'	Screw
8	Loading gear (TU)

Table 2-4-7

No.	Part name
9	Clutch gear unit (SUP)
9'	Slit washer
10	Clutch gear unit (TU)
10'	Slit washer
11	Idler cancel lever
11'	Tension spring
12	Idler unit
13	Reset lever
14	Slide base assembly
15	S-SW pin (S- VHS)
16	Relay cam
17	Cassette housing gear
17'	Slit washer

Table 2-4-8

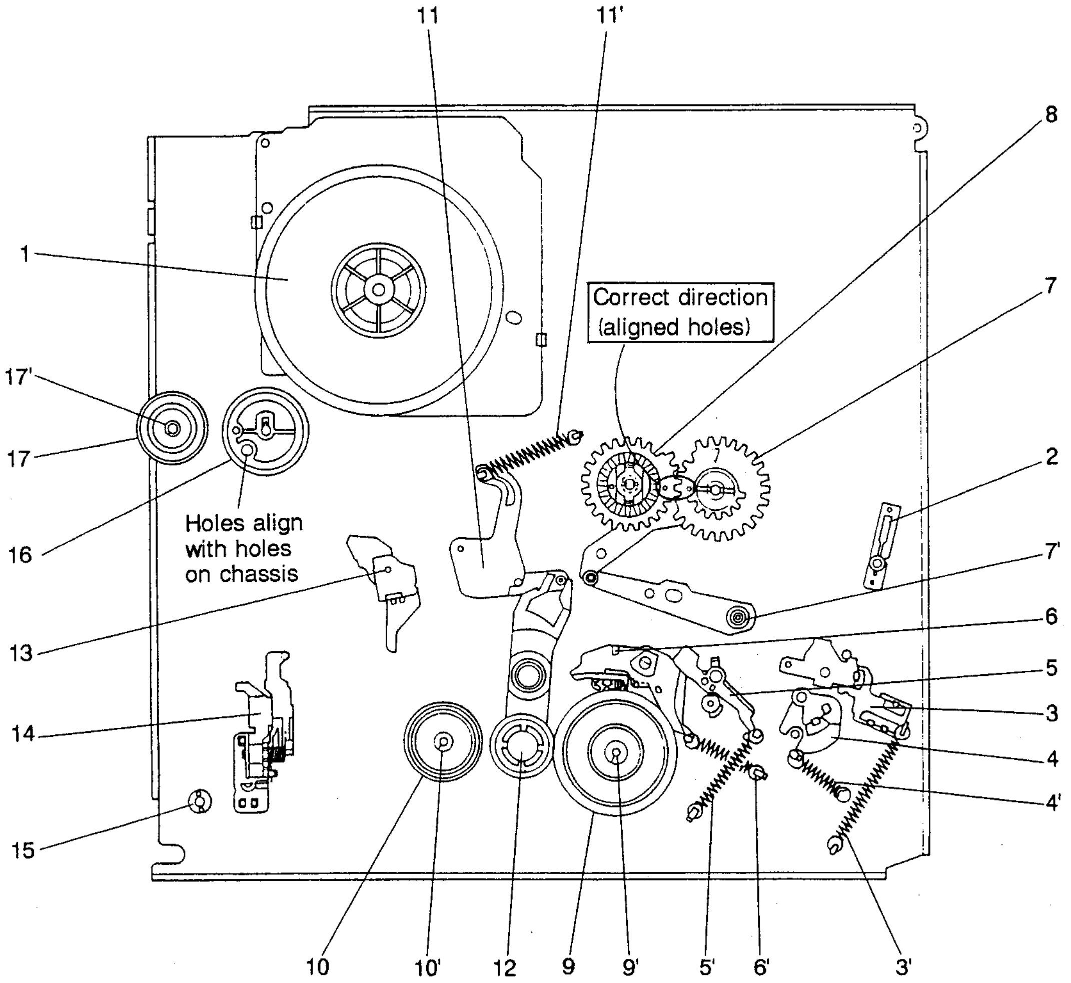

11
11'
8
1
Correct direction
(aligned holes)
7
17'
17
2
16
Holes align
with holes
on chassis
7'
13
6
5
3
14
4
4'
15
10
10'
12
9
9'
5'
6'
3'

Fig. 2-4-10

18) Install the Slide Plate with the lower stud of the Main Brake (TU side) set in the groove, and engage the tension spring (18') . Set the Slide Plate on the deck with the hole aligned with the hole on the chassis in the stage to install the mechanism parts on the upper side of the deck.

Note: ***If the Slide Plate is pulled to the phase adjusting position in the above mentioned state, the Main Brake (SUP side) catches the tip of Slide Plate and it is locked accordingly. Do not continue reassembling of the mechanism parts in this condition to prevent the Slide Base Assembly from getting damaged.***

19) Install the Capstan Brake Assembly and engage the tension spring (19').

No.	Part name
18	Slide plate
18'	Tension spring
19	Capstan brake assembly
19'	Tension spring

Table 2-4-9

20) Push the Take-up Lever with the two holes alinged with the holes on the chassis (see Fig. 2-4-12) . In this condition install the Control Plate and the slit washer (20').

21) Install the Worm Clutch Assembly and engage the belt (for the Mode Motor) between the Worm Assembly and the Loading Motor.

No.	Part name
20	Control plate
20'	Slit washer
21	Worm clutch assembly
21'	Belt

Table 2-4-10

22) Push the Idler Cancel Lever while install the Center Gear Unit and the slit washer (22') (see Fig. 2-4-13) with careful attention to the studs of the Idler Cancel Lever and the chassis so that both the studs are correctly set in the upper and the lower grooves of the Center Gear Unit respectively.

23) Install the Control Cam with the hole aligned with hole on the chassis. At that time, the stud in the tip of the Slide Base Assembly must be exactly set in the outer groove of the Control Cam.

No.	Part name
22	Center gear unit
22'	Slit washer
23	Control cam

Table 2-4-11

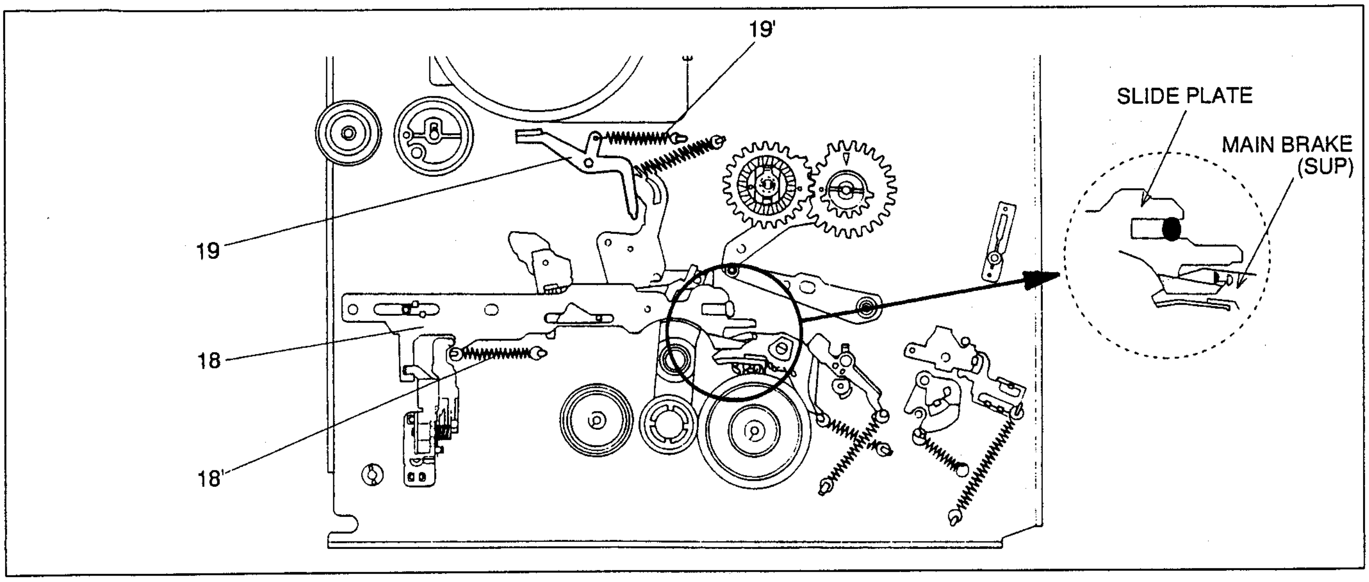
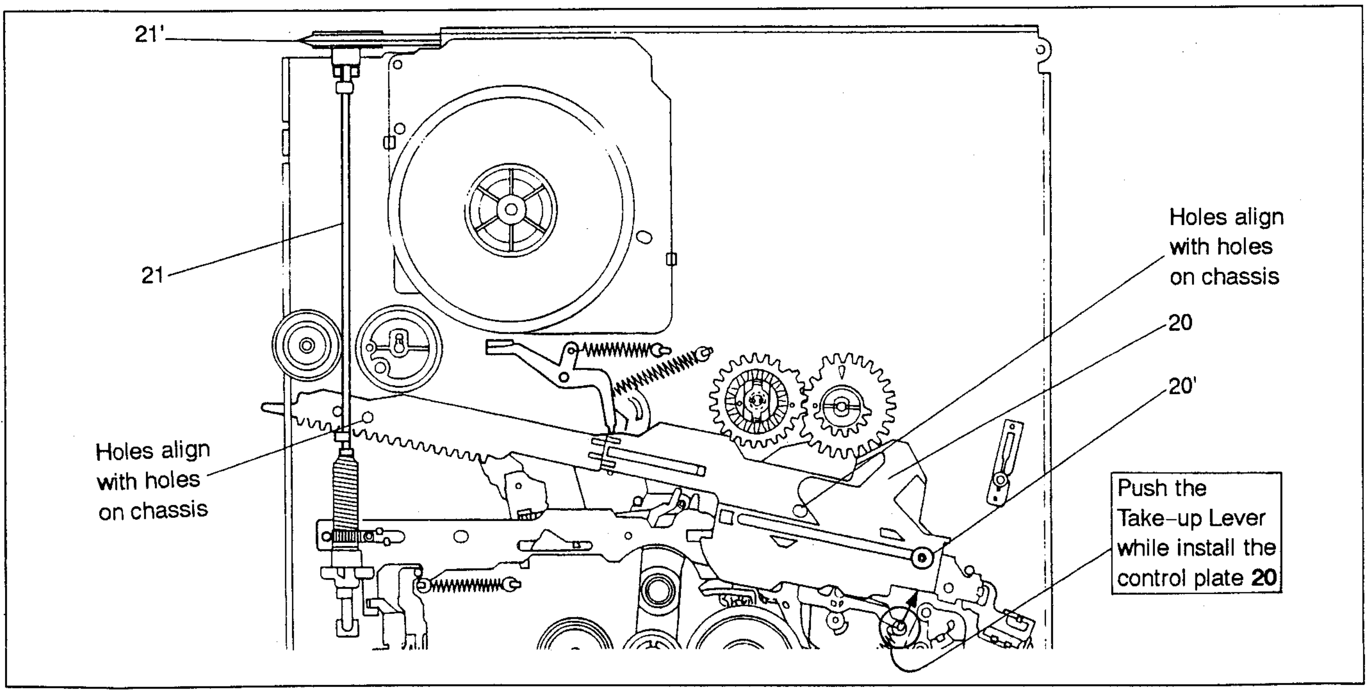
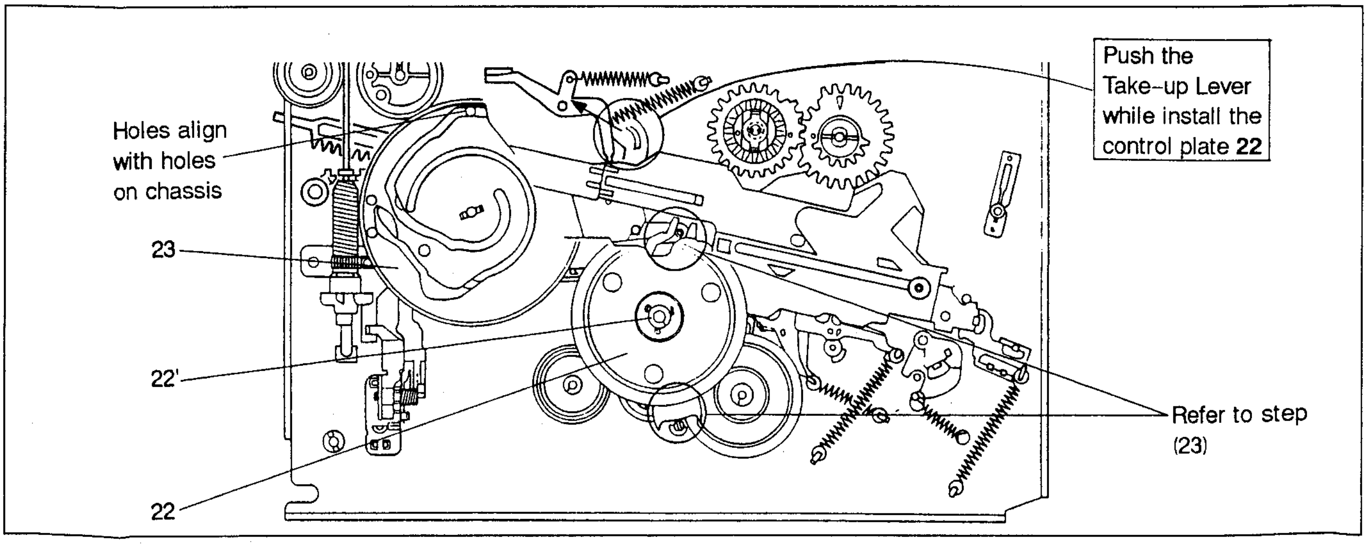

19'
SLIDE PLATE
MAIN BRAKE (SUP)
19
18
18'

Fig. 2-4-11


21'
21
Holes align with holes on chassis
20
20'
Holes align with holes on chassis

Push the Take-up Lever while install the control plate **20**


Holes align with holes on chassis
23
22'
22
Refer to step (23)

Push the Take-up Lever while install the control plate **22**

Fig. 2-4-13

24) Install the Arm Gear with the hole aligned with the hole on the Loading Gear (TU side) while secure with the slit washer (24'). At that time, make sure to set the stud of the Arm Gear in the groove of the Control Cam exactly.

No.	Part name
24	Arm gear
24'	Slit washer
24"	Tension spring

Table 2-4-12

25) When installing the DECK TERMINAL board, proceed in the following order; connect CN2, engage 2 hooks, and tighten the board with 4 screws (25').
When the Rotary Encoder is soldered to the DECK TERMINAL board, confirm that the hole of the Rotary Encoder is correctly positioned first, then install the DECK TERMINAL board and the slit washer.

26) Engage the belt (for the Capstan Motor) between the Capstan Motor and the Center Gear Unit.

No.	Part name
25	Deck Terminal board
25'	Screws (x 4)
25"	Connector (CN2)
26	Belt

Table 2-4-13

27) Install the Relay Gear.

28) Install the Drive Arm Assembly, slit washer (28'), and engage the tension spring (28").

29) Install the Rotary Encoder after confirming that the hole is correctly positioned, engage the slit washer (29') and solder the Rotary Encoder.

No.	Part name
27	Relay gear
28	Drive arm assembly
28'	Slit washer
28"	Tension spring
29	Rotary encoder
29'	Slit washer

Table 2-4-14

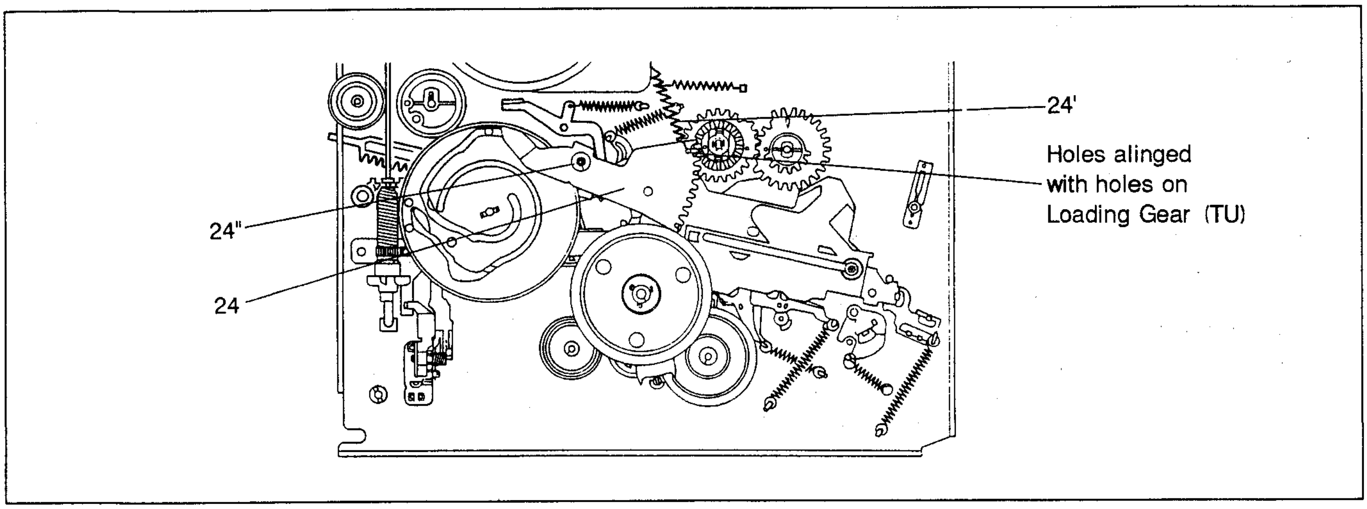

24'
Holes alinged
with holes on
Loading Gear (TU)
24"
24

Fig. 2-4-14

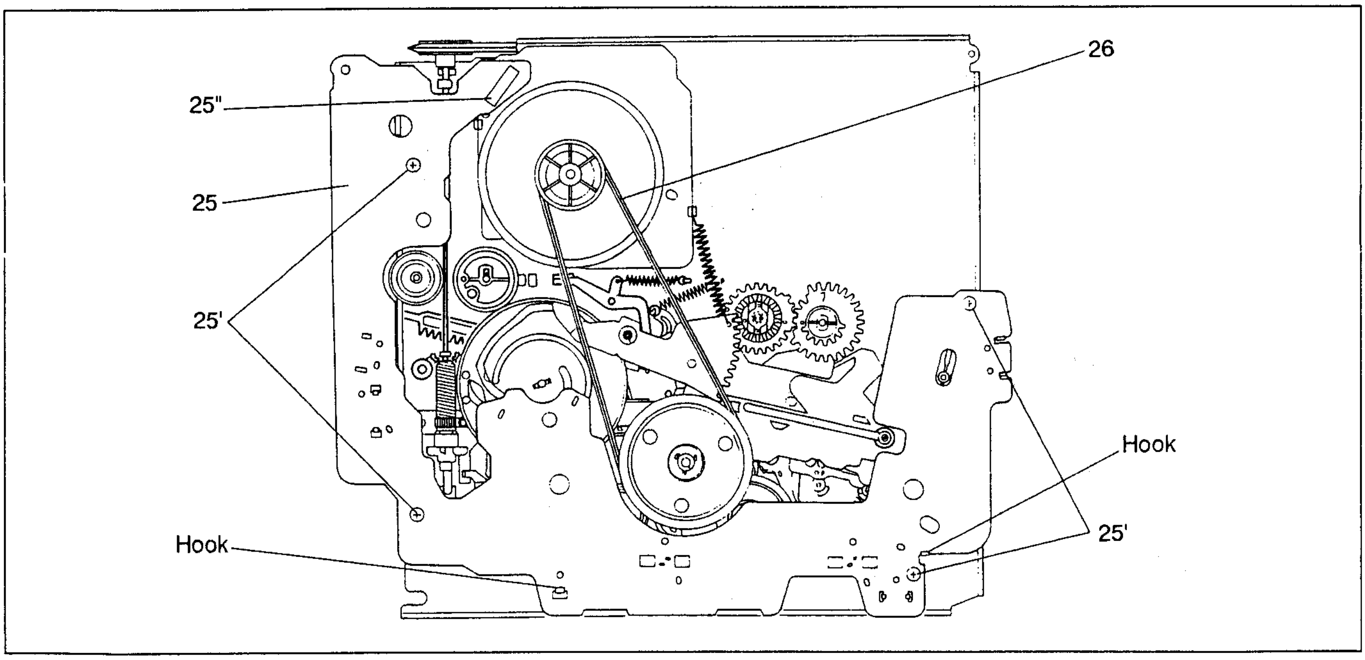

26
25"
25
25'
Hook
Hook
25'

Fig. 2-4-15

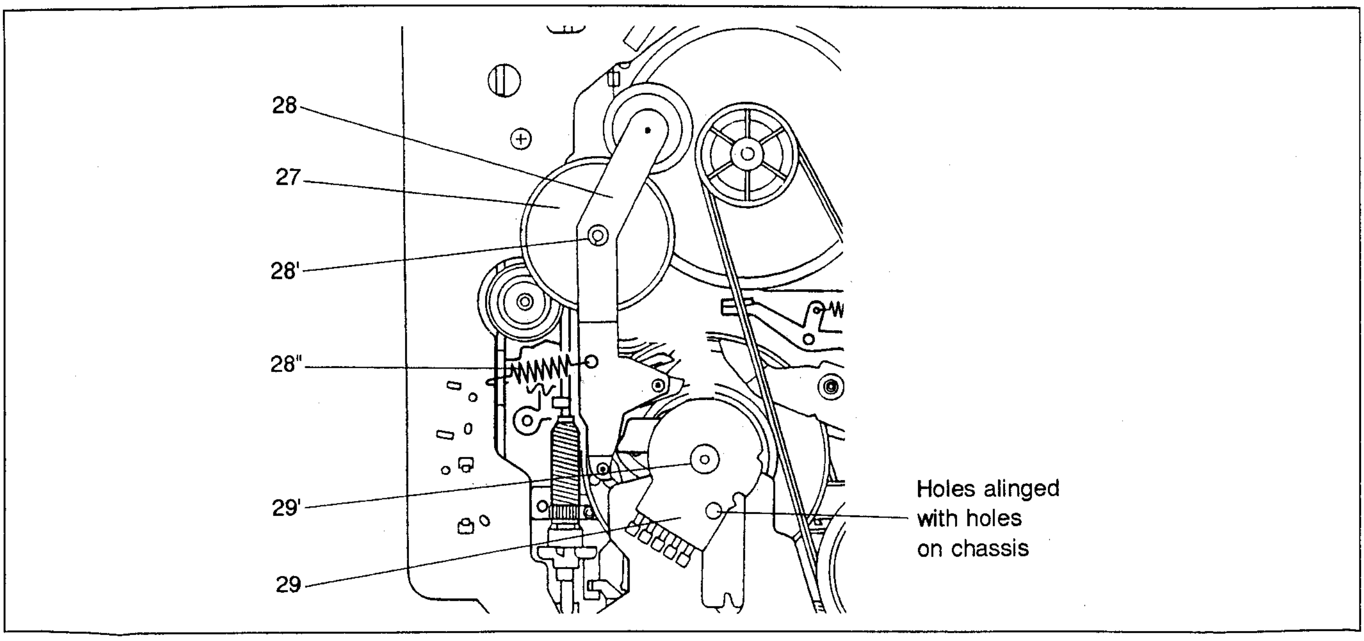

28
27
28'
28"
29'
29
Holes alinged
with holes
on chassis

Fig. 2-4-16

2. Reassembling of mechanism assembly parts in the upper side

1) Install the Pinch Roller Lever and engage the tension spring (1').
2) Install the Pinch Roller Cam as its marking matches with that of the Relay Cam. At that time, the two holes of the Pinch Roller Cam and the chassis should not match completely with each other but double by half as shown in the figure below.
3) Set in the compression spring (3") and install the Pinch Roller Arm Assembly so that the stud of the Pinch Roller Lever is positioned in the elliptical groove of the Pinch Roller Assembly, then engage the slit washer (3').

No.	Part name
1	Pich roller lever
1'	Tension spring
2	Pinch roller cam

Table 2-4-15

No.	Part name
3	Pinch roller arm assembly
3'	Slit washer
3"	Compression spring

Table 2-4-16

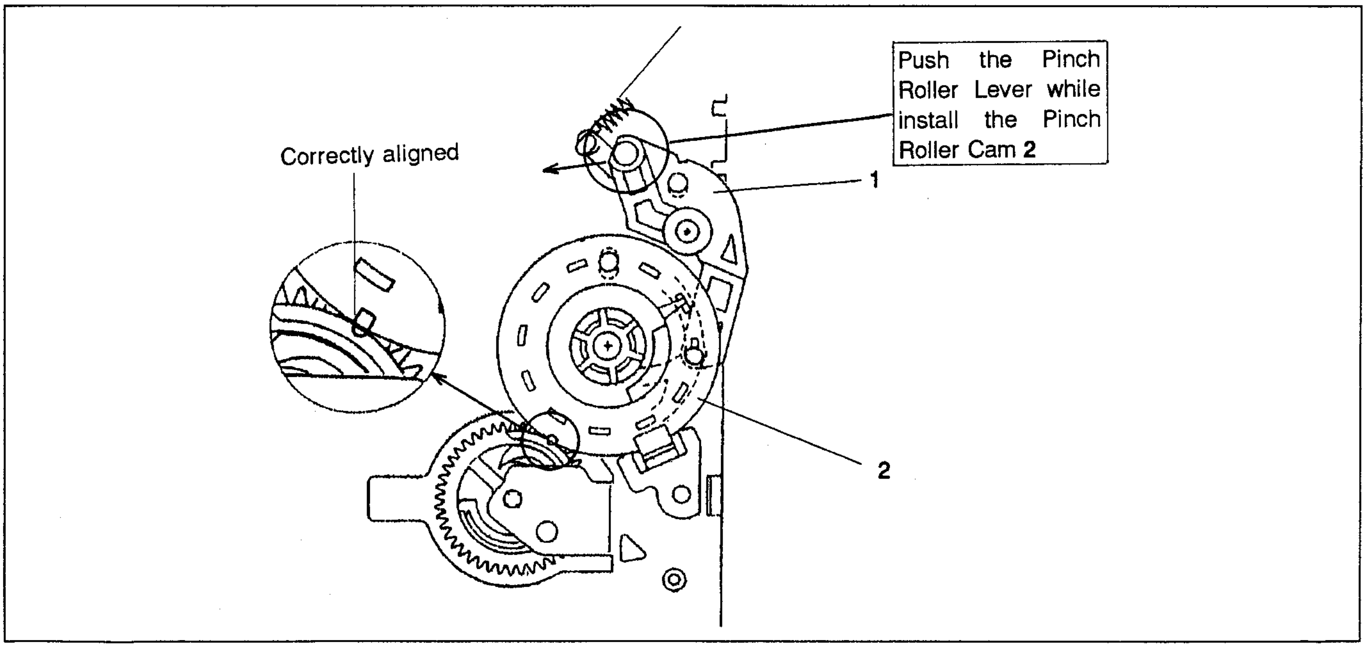

Correctly aligned
Push the Pinch Roller Lever while install the Pinch Roller Cam **2**
1
2

Fig. 2-4-17

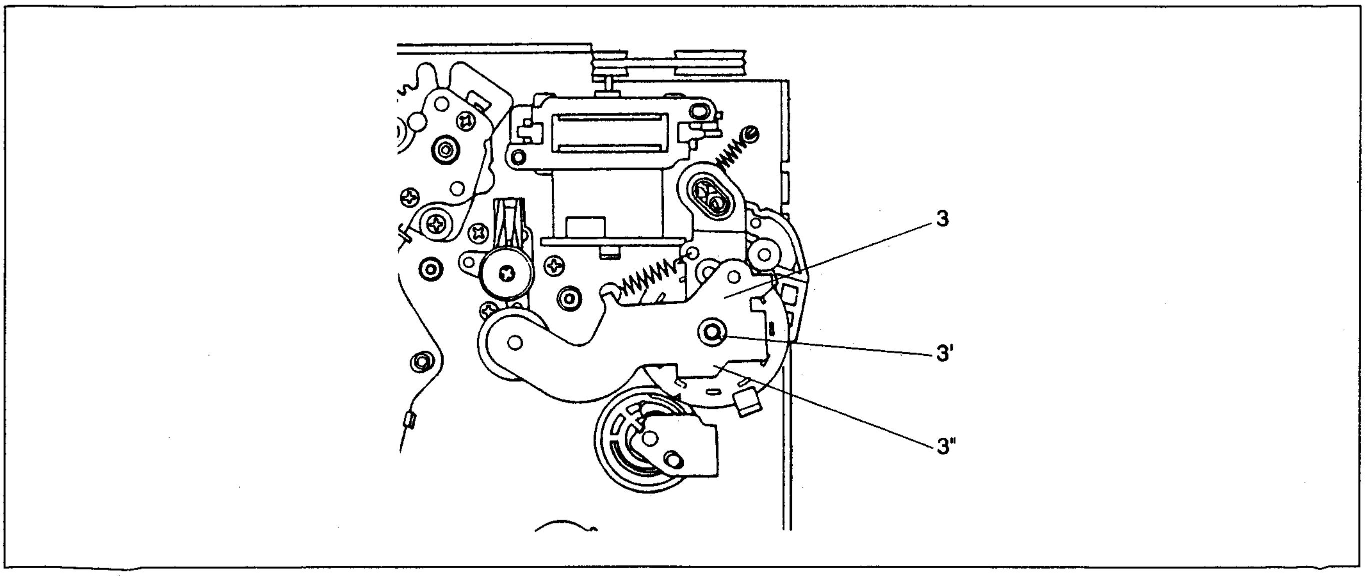


Fig. 2-4-18

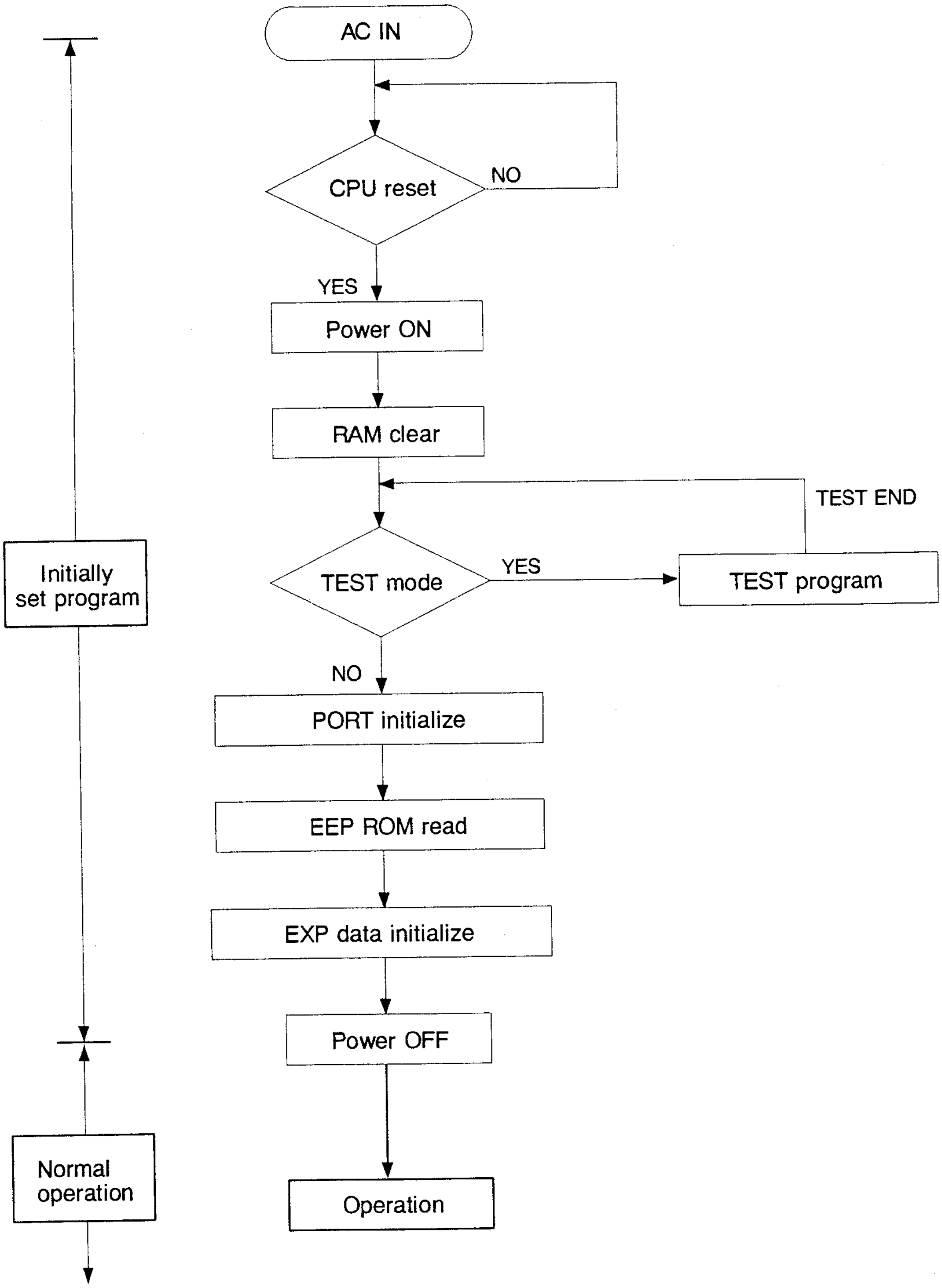
2.5 Quick advice

1. Check of faulty mechacon CPU

The following flowchart shows the initially set program that the mechacon CPU executes just after the AC power is supplied to the set.

If this program is not executed normally, the set is inoperable or falls in malfunction. For example, the case of "operation unacceptable" is mostly interpretable as the initial program is not executed normally. Generally, this trouble is not caused by problems of the mechacon CPU itself but results from something faulty in the peripheral parts (elements) of the CPU. This phenomenon rather occurs in this model since it transmits information of operation switches and sensors to the CPU in serial data through the input EXP. IC.

Therefore, this set needs to check the EXP. IC, EEP ROM, etc. besides Vcc, X'tal and so forth of the mechacon CPU.


AC IN
CPU reset
NO
YES
Power ON
RAM clear
TEST END
TEST mode
YES
TEST program
NO
PORT initialize
EEP ROM read
EXP data initialize
Power OFF
Operation
Initially set program
Normal operation

2.6 MAIN PARTS REPLACEMENT AND ADJUSTMENT

2.6.1 Stator assembly

1) Expand the hook in the direction indicated by the arrow and remove the Cleaner Assembly.
2) Take out 1 screw (D), then remove the Earth Plate.
3) Take out 2 screws (A).
4) Raise the Stator Assembly in the direction indicated by the arrow to remove it (also remove the Inertia Roller).
5) Remove the flat cable.
6) To install, first secure the flat cable, then insert 2 screws (A).
7) After installing, be sure to perform switching point adjustment.

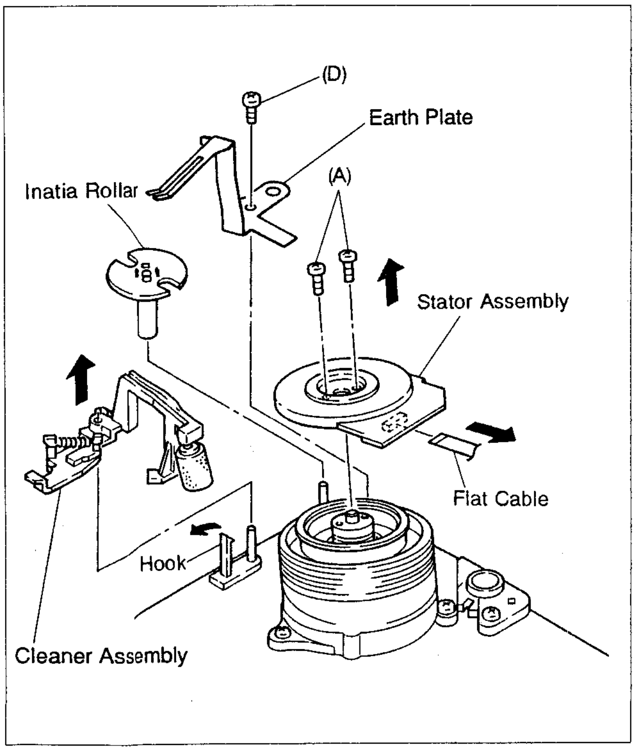

(D)
Earth Plate
Inatia Rollar
(A)
Stator Assembly
Flat Cable
Hook
Cleaner Assembly

Fig. 2-6-1 Stator assembly

2.6.2 Rotor assembly

1) Remove the Cleaner Assembly, Eart Plate and Stator Assembly.
2) Take out 2 screws (B) and remove the Rotor Assembly.

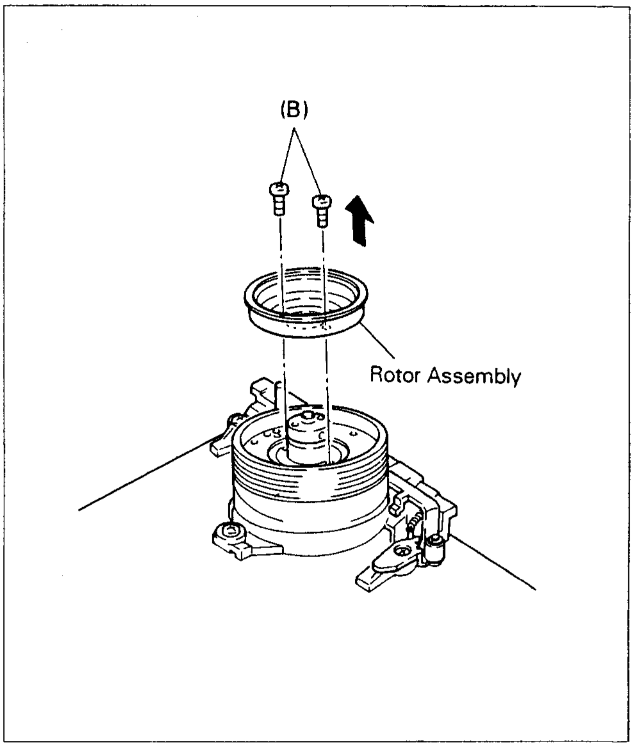

(B)
Rotor Assembly

Fig. 2-6-2 Rotor assembly-1

Note: *A normal picture will not be obtained unless the phase is properly aligned when installing the Rotor Assembly. Also note there are three types of Rotors.*

3) Align the Upper Drum and Rotor Assembly phase as indicated in Fig. 2-6-3.

4) Overlap holes (a) of the Upper Drum with holes (b) of the Rotor Assembly (align holes in 3 locations) and secure with 2 screws (B) (see Fig. 2-6-2).

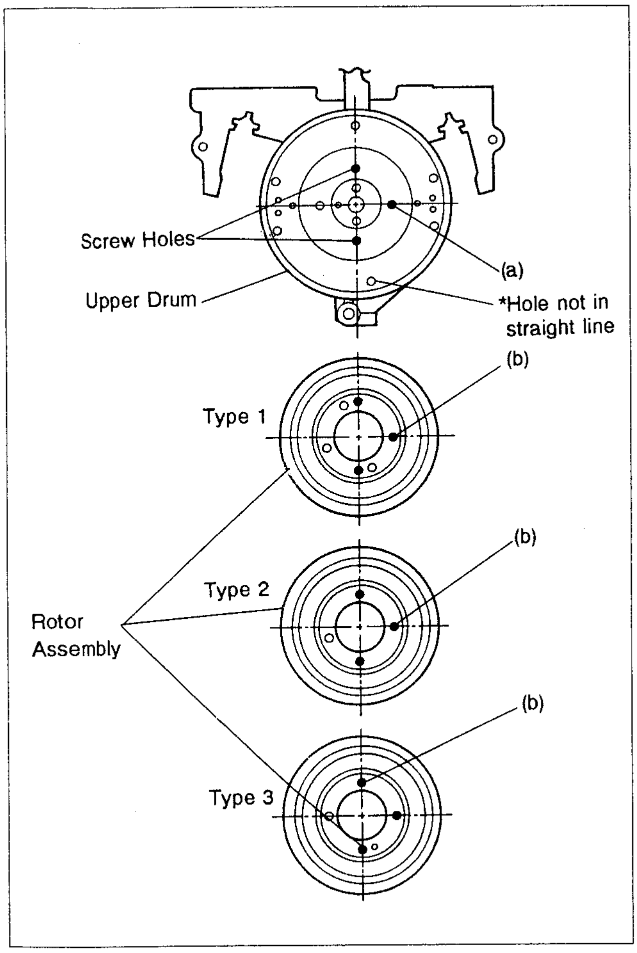

Screw Holes
Upper Drum
(a)
*Hole not in straight line
(b)
Type 1
(b)
Type 2
Rotor Assembly
(b)
Type 3

Fig. 2-6-3 Rotor assembly-2

2.6.3 Drum sub assembly

1) Disengage the PRE/REC AMP board connector and flat cable.

2) Take out 3 screws (C) and remove the Drum Subassembly.

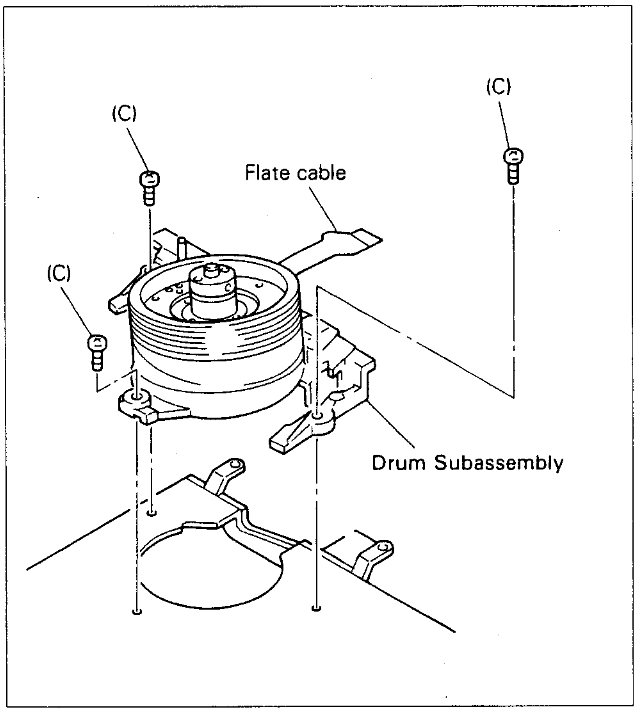

(C)
(C)
Flate cable
(C)
Drum Subassembly

Fig. 2-6-4 Drum aub assembly

2.6.4 Upper Drum assembly

1. Removal

1) Remove the Stator and Rotor Assemblies.
2) Use a 1.5 mm hexagonal wrench to loosen the Collar Assembly screw and remove the Collar Assembly.
3) Remove the Upper Drum Assembly and use tweezers to remove the Washer.

Note: *As grease is applied to the Brush, use care to avoid contamination by dirt or other foreign matter. If the Brush is replaced, use care regarding top and bottom direction and be sure to apply the specified grease (PTU94014A) to the contact sections (2 locations).*

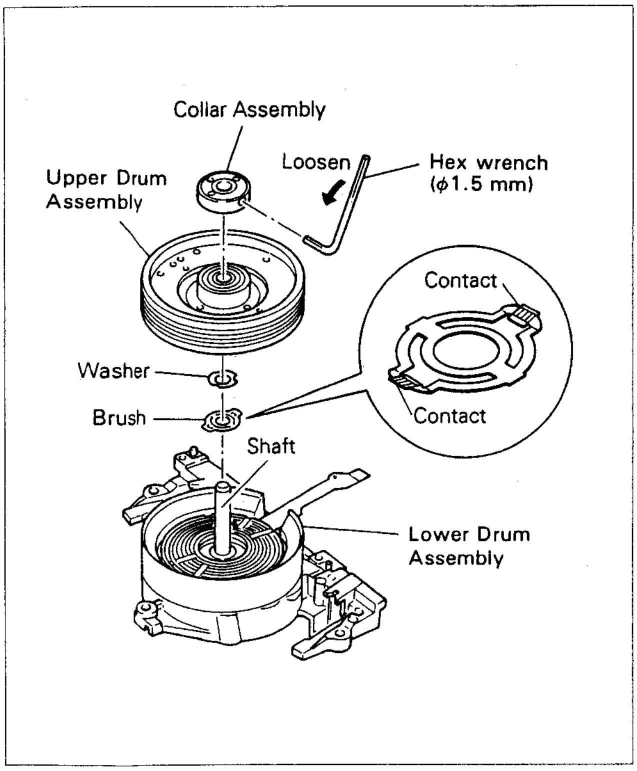

Collar Assembly
Upper Drum Assembly
Loosen
Hex wrench (φ1.5 mm)
Contact
Washer
Brush
Contact
Shaft
Lower Drum Assembly

Fig. 2-6-5 Upper drum assembly-1

2. Installation

1) Use an air brush to clean the Lower Drum Assembly and the coil section of the new Upper Drum Assembly.
2) Set a new Washer and Upper Drum Assembly on the Drum shaft (see Fig. 2-6-5).

Note: *Be sure to use the new Washer supplied with the replacement Upper Drum Assembly.*

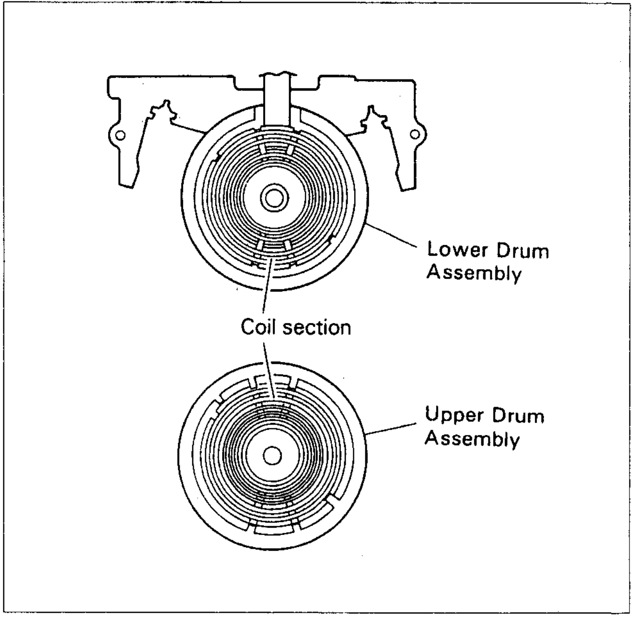

Lower Drum Assembly
Coil section
Upper Drum Assembly

Fig. 2-6-6 Upper drum assebly-2

3) Note the top and bottom of the Collar Assembly and determine the position as indicated in Fig. 2-6-7.

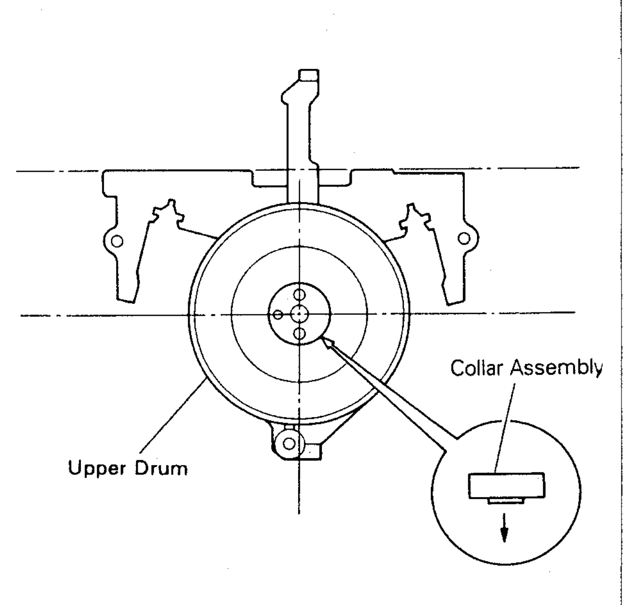

Collar Assembly
Upper Drum

Fig. 2-6-7 Collar assembly-1

4) While pressing the Collar Assembly evenly from above with the fingertips, secure the hexagonal screw.

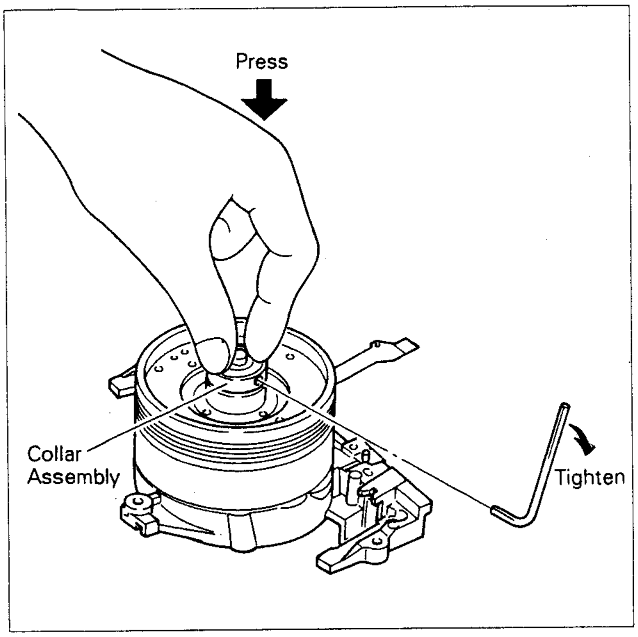

Press
Collar Assembly
Tighten

Fig. 2-6-8 Collar assembly-2

5) After installing, gently turn the Upper Drum by hand and confirm normal rotation.
6) Install the Rotor and Stator Assemblies.
7) Clean the Upper and Lower Drum Assemblies and perform the following adjustments;
   - Switching Point Adjustment
   - Interchangeability Adjustment (be sure to check EP mode)
   - Recording color level Adjustment

2.6.5 A/C head

1. Removal

1) Take out 2 screws ① and remove the A/C head arm assembly.

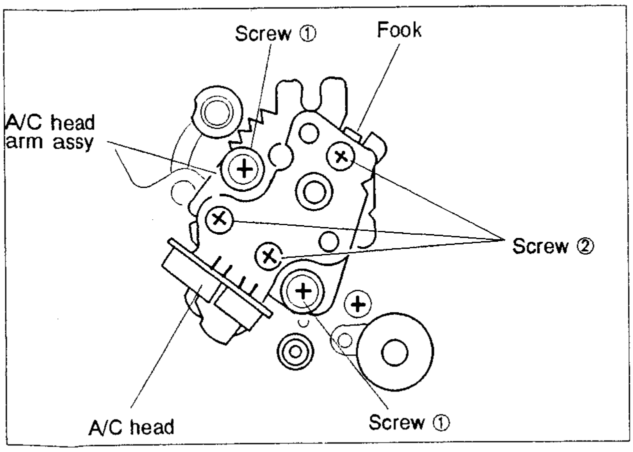

Screw ①
Fook
A/C head arm assy
Screw ②
A/C head
Screw ①

Fig. 2-6-9 A/C head replacement-1

2) When replace only A/C head. Remove 3 screws ②, use care not to misplace the 3 springs.

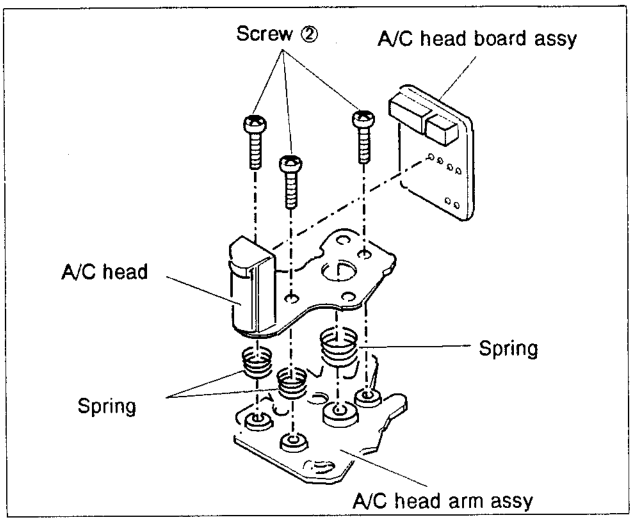

Screw ②
A/C head board assy
A/C head
Spring
Spring
A/C head arm assy

Fig. 2-6-10 A/C head replacement-2

2. Installation

1) Temporarily set the A/C head height as indicated in Fig. 2-6-11.

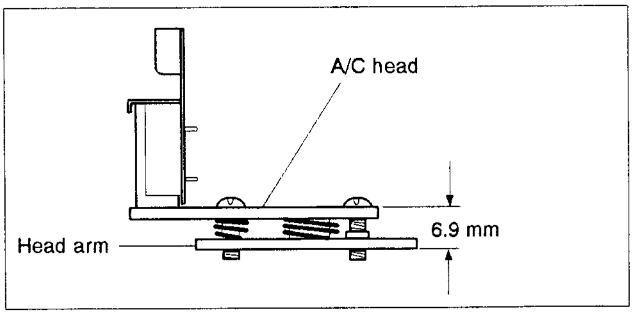

A/C head
Head arm
6.9 mm

Fig. 2-6-11 A/C head height

Notes:
- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

Note: *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head, drum assembly, etc.).*

2.7.1 Tilt adjustment of A/C head

1) Use blank tape and set for playback.
2) Turn 1 screw ① clockwise to where the tape curls just slightly at the take-up guide pole bottom flange, as shown in Fig. 2-7-1.
3) Then slowly turn screw ① counter-clockwise to where the curling ceases.

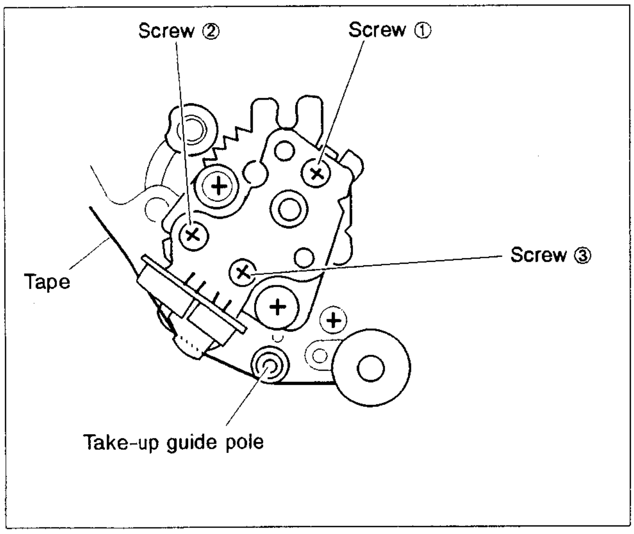


Fig. 2-7-1 A/C head tilt adjustment

2.7.2 Aximuth adjustment of A/C head

1) Connect the oscilloscope to the audio output jack on the rear of the deck.
2) Playback the stairstep portion (7 kHz, Mono) of the alignment tape.
3) Adjust 1 screw ② on the A/C head arm assembly in Fig. 2-7-1 so that the audio output is both maximum and with minimum fluctuation.

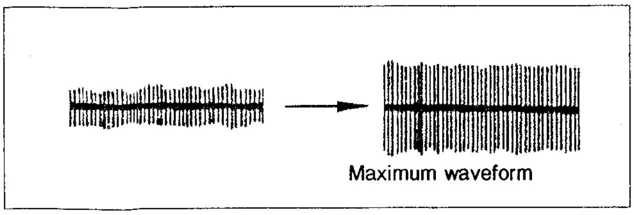


Fig. 2-7-2 A/C head azimuth adjustment

2.7.3 Height adjustment of A/C head

1) Playback the blank tape and observe the control head area.
2) Turn screws ①, ② and ③ by small and equal increments (about 45° at a time) to adjust the A/C head height for equal width can be seen, by both core erea as shown in Fig. 2-7-3 (upper core of the audio erase head and bottom core of the control head).
3) Confirm that the azimuth adjustment (2.7.2), if necessary adjustment it.

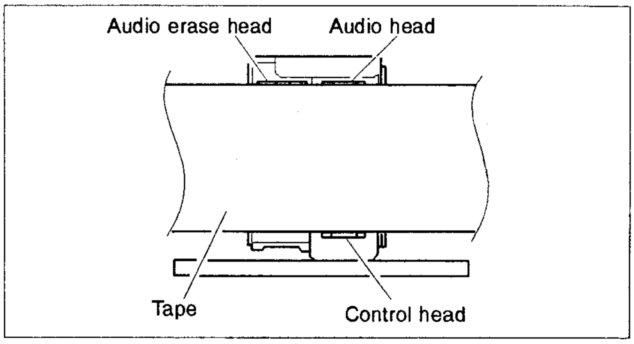


Fig. 2-7-3 A/C head height adjustment

2.7.4 Phase (X-value) adjustment of A/C head

1) Playback the stairstep portion of the alignment tape [MH-1].
2) Connect the oscilloscope to TP306 (PB FM) on the MAIN board. Use TP411 (DRUM FF) as a trigger. Confirm that the FM waveform appears, as in Fig. 2-7-5.
3) Set the neutral manual tracking position, by simultaneously press of the (+) and (–) tracking buttons.
4) If adjustment is required, slightly loosen screws ④ and ⑤. Set A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 2-7-4.
5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the durm and stop at the position of maximum FM waveform output level as shown in Fig. 2-7-5.
6) Tighten screw ⑤. Remove the tool and tighten screw ④.
7) Eject the tape and then re-insert alignment tape [MH-1L]. Playback the stairestep of the alignment tape. Set the neutral manual tracking position.
8) Confirm maximum playback FM waveform outut level sa shown in Fig. 2-7-5.
9) If not maximum, slightly loosen the screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.

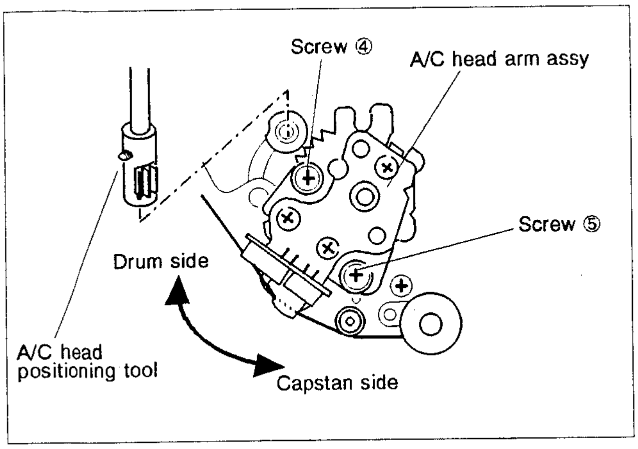


Fig. 2-7-4 A/C head phase adjustment-1

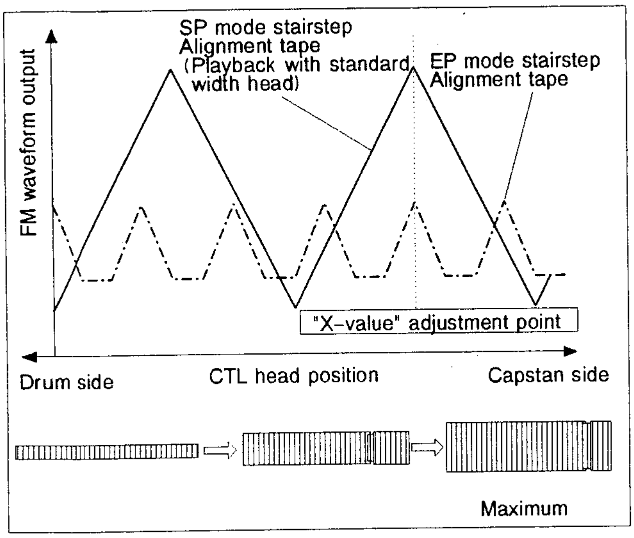


Fig. 2-7-5 A/C head phase adjustment-2

2.7.5 EP mode auto tracking

1) Playback the stairstep of the alignment tape [MH-1L].
2) Confirm that the A/V digital tracking LED changes coming on from flickering.
3) Press the "D" button of the preseting unit [PTU94008] to turn off the A/V digital tracking LED.
4) Press the "D" button again to change the mode to the EP interchangeability adjustment mode and confirm that the A/V digital tracking LED changes to coming out from flickering.

Note: *When the MH-1L alignment tape is automatically ejected from the cassette housing, repeat the above adjustment (phase adjustment of A/C head, sec. 2.7.4).*

2.7.6 Tension pole position

1) Turn the eccentric adjust pin to align the notch of the pin with the mark as shown in Fig. 2-7-6.
2) Set the cassette housing assembly. Use the back tension cassette gauge and set for the playback mode.
3) Confirm reading of 35 to 48 g•cm.

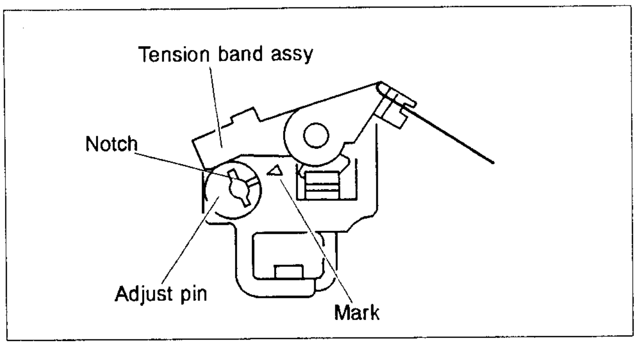


Fig. 2-7-6 Tension pole position

2.7.7 Clutch assembly adjustment

1) Remove cassette housing and se for playback mode (Refer to sec. 2.1.2).
2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100 g•cm.

2.7.8 SUP/TU pole base adjustment

This is the most important adjustment. If incorrect, proper tracking will not be obtained in recording and playback.
Other problems that may occur are noise in parts of the picture, poor color reproduction and picture instability.

1) Playback the stairstep portion of the alignment tape [MH-1].
2) Connect the oscilloscope to TP306 (PB FM) on the MAIN AMP board. Use TP411 (DRUM FF) as a trigger. Confirm that the RF envelope appears, as in Fig. 2-5-9.
3) Operate the tracking adjustment (press the tracking buttons during playback) and set for maximum playback RF envelope waveform.
4) If adjustment is required, first slightly loosen the set screw located at the bottom of the guide rollers. Using the guide roller adjustment tool, adjust the supply and take-up guide rollers (refer to Fig. 2-7-8) to obtain the correct waveform. Refer to Fig. 2-7-9.

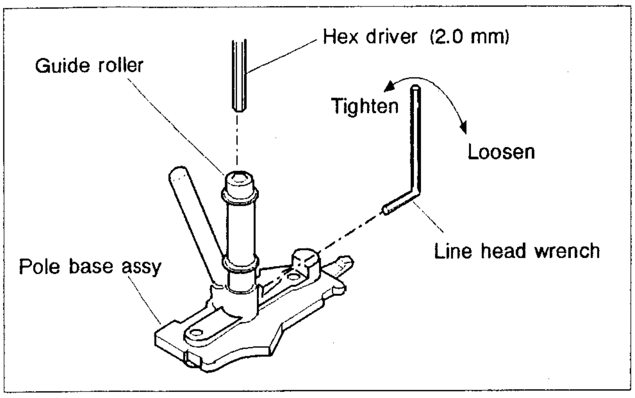

Hex driver (2.0 mm)
Guide roller
Tighten
Loosen
Line head wrench
Pole base assy

Fig. 2-7-8 SUP/TU pole base assembly

5) By pushing the tracking buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually, and confirm that the variation proceeds in a flat shape, as in Fig. 2-7-10.
6) If the FM waveform varies and is not mostly flat, tweak the height of guide roller(s) until the RF waveform is as flat as possible.
7) Eject a tape and then playback tape again, since the height of guide rollers may move during adjustment. Confirm, when pushing the tracking (+) and (-) buttons, FM waveform variation is always flat.

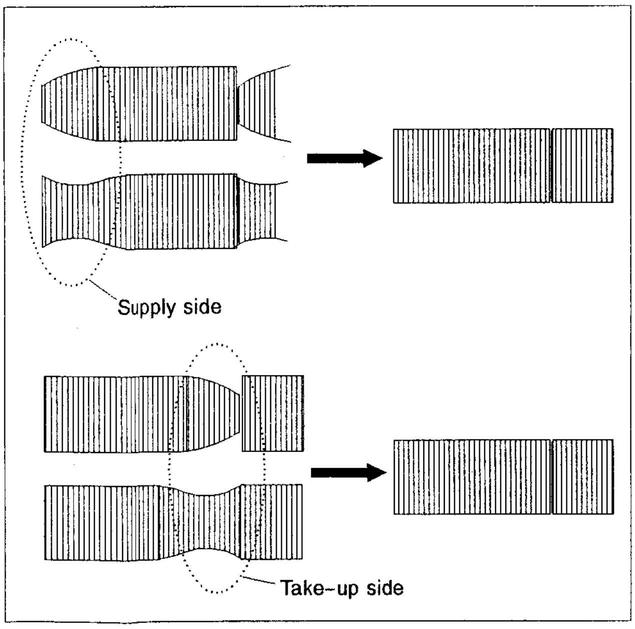

Supply side
Take-up side

Fig. 2-7-9 FM waveform -1

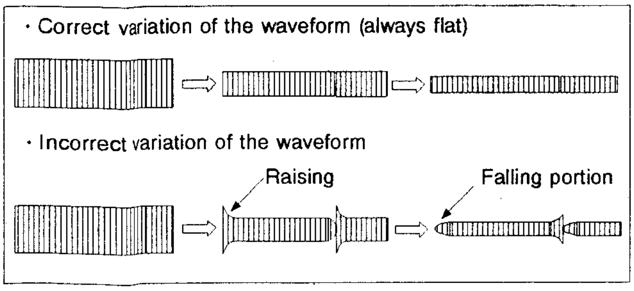

· Correct variation of the waveform (always flat)
· Incorrect variation of the waveform
Raising
Falling portion

Fig. 2-7-10 FM waveform -2

2.7.9 Tape transport system confirmation

1) Use a 140-minute or more long tape and check at the tepe beginning and ending portion according to the following steps.
2) Confirm absence of curling, wrinkling, slippage, etc at the (a), (b), (c) and (d) portions, as shown in Fig. 2-7-11.
3) If curling or winkling are observed during the above checks, perform the steps 2.7.1 to 2.7.8.

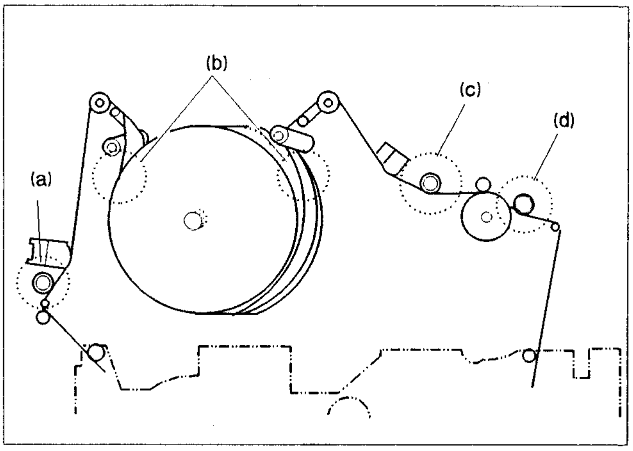


Fig. 2-7-11 Tape transport system

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 DECK SECTION ADJUSTMENT

3.1.1 PRECAUTION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available.

1. Required test equipment

1. Color television or monitor
2. Osciloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. AC millivoltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: NTSC color bar, stairstep
9. Recording tape

2. Required adjustment tools

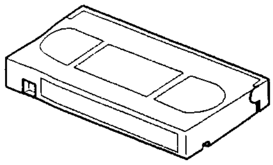
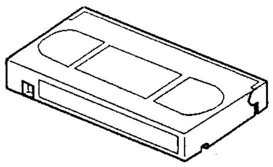
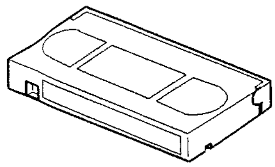
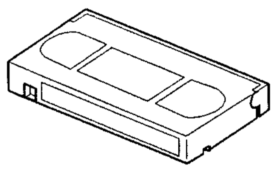
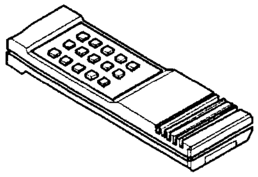
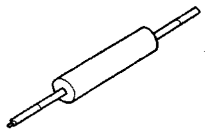
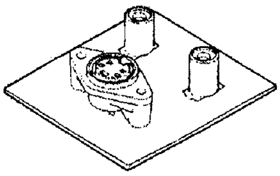
Alignment tape (SP) MH-1	Alignment tape (EP) MH-1L
	
Alignment tape (S-VHS) MH-1H	Alignment tape (FM AUDIO) MH-F1
	
Presetting unit PTU94008	Adjustment driver YTU93004-2
	

Table 3-1-1 (A) Required adjustment tools

RCA-S Adapter PTU93004 1A	※SMC replacement tools YTU94038A
	

※**Note:** *It is convenient for replacing chip parts.*

Table 3-1-1 (B) Required adjustment tools

3. Color bar signal, color bar pattern and video sweep signal

- Color bar signal

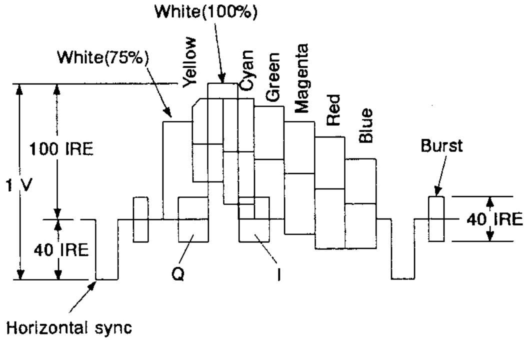

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
100 IRE
1 V
40 IRE
Q
I
Burst
40 IRE
Horizontal sync

Fig. 3-1-1 Color bar signal waveform

- Color bar pattern

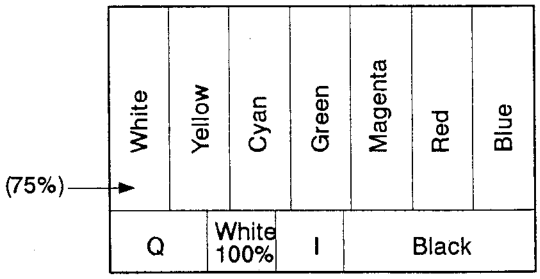

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 3-1-2 Color bar pattern

- Video sweep signal

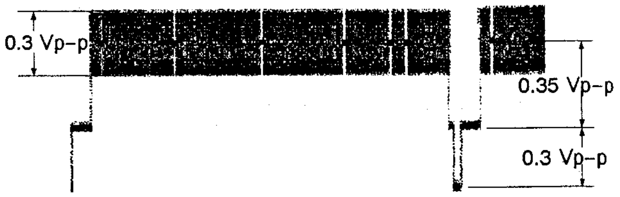

0.3 Vp-p
0.35 Vp-p
0.3 Vp-p

Fig. 3-1-3 Video sweep signal

- Multi burst signal

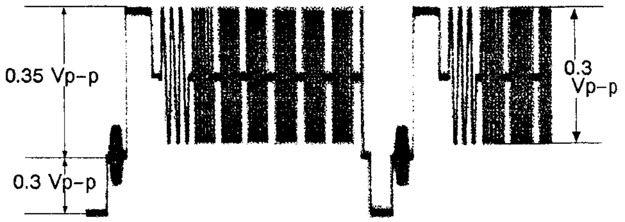

0.35 Vp-p
0.3 Vp-p
0.3 Vp-p

Fig. 3-1-4 Video sweep signal

3.1.2 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the SWITCHING REGULATOR BOARD.*

1. 5V DC output voltage

Signal	•AUX •Color bar
Mode	•REC : SP
Equipment	•Digital voltmeter
Measurement point	•CN3 pin 4 (SWD 5 V) •CN3 pin 3 (GND)
Adjustment part	•R34 (SWD 5 V)
Specification	•5.40 ± 0.05 V DC

1) Connect a digital voltmeter to pin 4 of CN3 (SWD 5V) and pin 3 of CN3 (GND).
2) Adjust R34 for 5.40 ± 0.05 V DC.

3.1.3 SERVO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. PB switching point

Signal	•Alignment tape (MH-1) •Stairstep
Mode	•PB •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP310 (VIDEO OUT)
Trigger slope (-)	•TP411 (DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5 H

Note: *Set VCR to the mode A by remote controller.*

1) Connect an oscilloscope to TP310 and TP411.
2) Playback the stairstep signal of the alignment tape.
3) Set the tracking control to the center position by simultaneously pressing the (+) and (–) buttons.
4) Adjust by pressing "B" (+) or "C" (–) buttons of presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

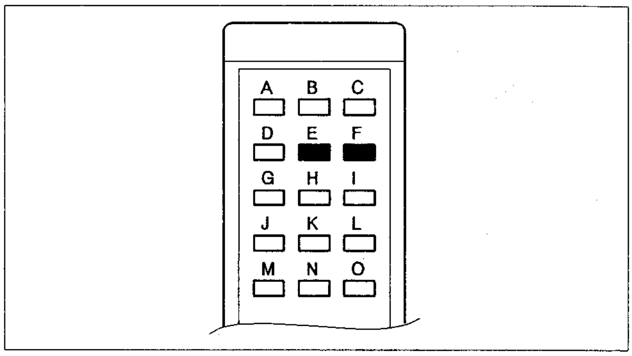


Fig. 3-1-5 Presetting unit

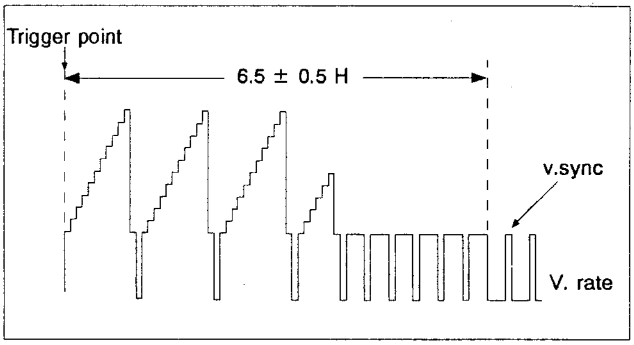


Fig. 3-1-6 PB switching point

2. Slow tracking preset

Signal	•AUX •Color bar
Mode	•REC → PB (SLOW) •SP/EP •Auto tracking : OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Mimimum noise

Note: *Set VCR to the mode A by remote controller.*

1) Record a color bar signal in the SP mode.
2) Playback recorded signal on the FWD slow mode.
3) Set the tracking control to the center position by simultaneously pressing the (+) and (–) buttons.
4) Observe the display on a TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" (+) or "C" (–) buttons of presetting unit as required.
5) Depress the STOP button.
6) Confirm that the bar noise is not visible on the monitor in the slow mode.
7) Repeat steps 2) to 6) in REV slow mode.
8) Repeat steps 1) to 7) in EP mode.

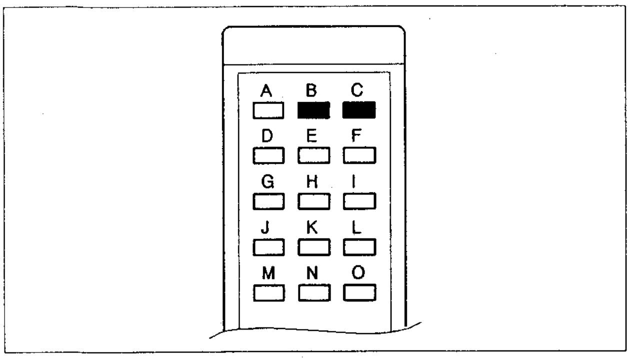

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

Fig. 3-1-7 Presetting unit

3.1.4 VIDEO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD, and N-VHS mode.*

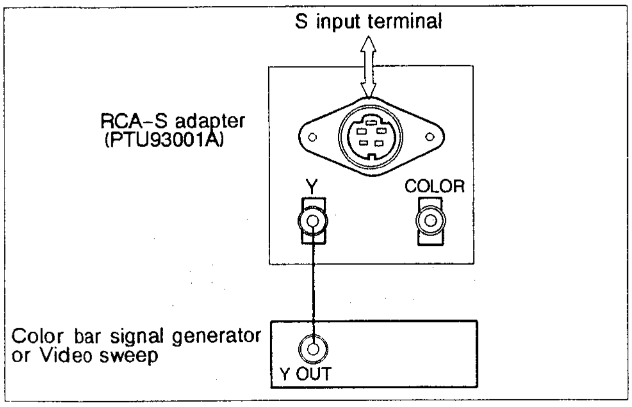

S input terminal
RCA-S adapter (PTU93001A)
Y
COLOR
Color bar signal generator or Video sweep
Y OUT

Fig. 3-1-8 S input connection

1. EE Y level

Signal	•S input •Color bar
Mode	•EE •S-VHS : ON
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT) •TP25 (SUB EMPHA IN) [VIDEO BOARD]
Adjustment part	•R303 (EE Y LEVEL) •R9 (SUB EMPHA LEVEL) [VIDEO BOARD]
Specification	•"A" : 0.71 ± 0.02 Vp-p : R303 •"B" : 400 ± 10 mVp-p : R9

1) Connect an oscilloscope to TP320.
2) Adjust R303 for "A" level is 0.71 Vp-p, as in Fig. 3-1-9.
3) Connect an oscilloscope to TP25 and adjust R9 for "B" level is 400 mVp-p, as in Fig. 3-1-9.

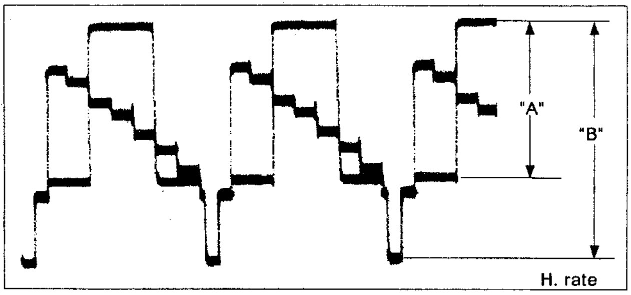


Fig. 3-1-9 EE Y level

2. Y NR level

Signal	•Alignment tape [MH-1L] •EP color bar
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP153 (NC IN) [VIDEO board]
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R214 (NC BALANCE) [VIDEO board]
Specification	•Minimum DC setup difference

1) Connect an oscilloscope to TP153.
2) Playback the EP color bar signal of the alignment tpe.
3) Adjust R214 for minimum DC steup difference, as in Fig. 3-1-10.

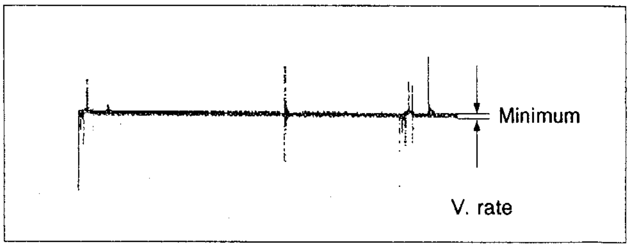


Fig. 3-1-10 Y NR level

3. CNR NC level

Signal	•Alignment tape [MH-1] •SP color bar
Mode	•PB
Equipment	•Oscilloscope
Measurement point	•TP134 (CNR NC) [VIDEO board]
Adjustment part	•R219 (CNR NC BALANCE-1) 〔VIDEO board〕 •R220 (CNR NC BALANCE-2) 〔VIDEO board〕
Specification	•Minimum 3.58 MHz level

1) Connect an oscilloscope to TP134.
2) Playback the SP color bar signal of the alignmet tape.
3) Alternately adjust R219 and R220 to minimize the 3.58 MHz level, i,e,, so that only the noise component is observable, as in Fig. 3-1-11.

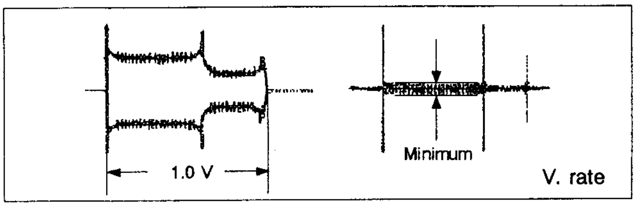


Fig. 3-1-11 CNR NC level

4 C comb level

Signal	•AUX •Multi burst
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP324 (C COMB OUT)
Adjustment part	•R328 (C COMB PHASE) •R333 (C COMB GAIN)
Specification	•Minimum 3.58 MHz level

Note: *Confirm that procedure 3.1.4-3. is correct before performing this adjustment procedure.*

1) Connect an oscilloscope to TP324.
2) Adjust R328 and R333 alternately for minimum 3.58 MHz level "A", as in Fig. 3-1-12.

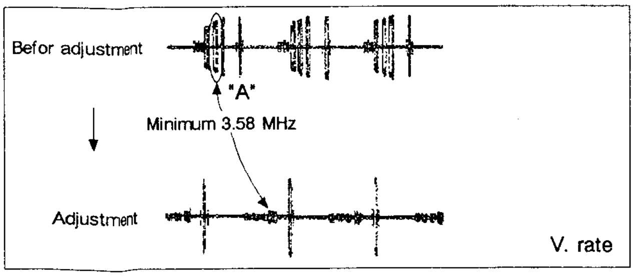


Fig. 3-1-12 C comb level

5. Y comb level

Signal	•AUX •Color bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP4 (W/C CLIP) 〔VIDEO board〕
Adjustment part	•R322 (Y COMB PHASE) •R324 (Y COMB GAIN)
Specification	•Minimum magenta level

Note: *Confirm that procedure 3.1.4-4. is correct before performing this adjustment procedure.*

1) Connect an oscilloscope to TP4.
2) Alternately adjust R322 and R324 for minimum chromatic level of the magenta portion, as in Fig. 3-1-13.

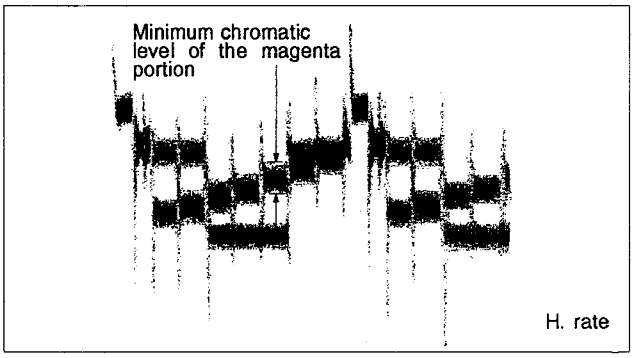


Fig. 3-1-13 Y comb level

6. N PB Y level

Signal	•S input •Color bar
Mode	•REC → PB : SP •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R37 (N PB Y LEVEL-1) 〔VIDEO board〕 •R247 (N PB Y LEVEL-2)
Specification	•A : 0.71 ± 0.02 Vp-p : R37 •B : 0.29 ± 0.01 Vp-p : R247

1) Connect an oscilloscope to TP320.
2) Record and playbck a color bar signal.
3) Adjust R37 so that the video level "A" is 0.71 Vp-p, as in Fig. 3-1-14.
4) Adjust R247 so that the sync level "B" is 0.29 Vp-p, as in Fig. 3-1-14.
5) Confirm that the Y level "C" is 1.00 ± 0.03 Vp-p as in Fig. 3-1-14.

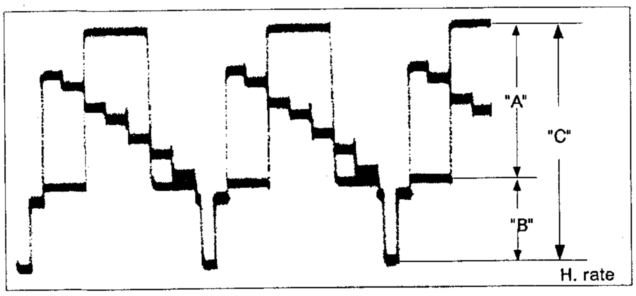


Fig. 3-1-14 N PB Y level

7. S PB Y level

Signal	•S input •Color bar
Mode	•REC → PB : SP •S-VHS •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R35 (S PB Y LEVEL) [VIDEO board]
Specification	•1.00 ± 0.03 Vp-p

1) Connect an oscilloscope to TP320.
2) Record and playbck a color bar signal.
3) Adjust R35 for 1.00 ± 0.03 Vp-p, as in Fig. 3-1-15.

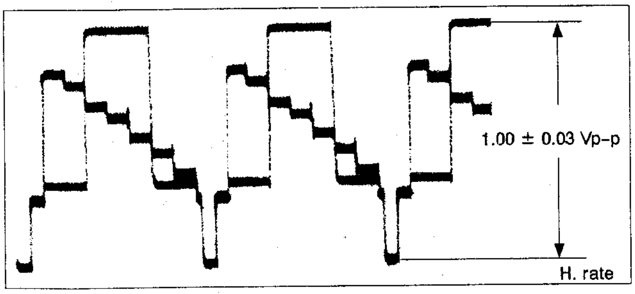


Fig. 3-1-15 S PB Y level

8. S VIDEO EQ

Signal	•S input •Video sweep
Mode	•REC → PB : SP/EP •S-VHS •Auto tracking : OFF
Equipment	•Oscilloscope
Measurement point	•TP320 (Y OUT)
Adjustment part	•R8 (S SP VIDEO EQ) [REC AMP board] •R11 (S EP VIDEO EQ) [REC AMP board]
Specification	•3.2 ± 0.2 scale (SP) •2.8 ± 0.2 scale (EP)

1) Connect an oscilloscope to TP320.
2) Record a video sweep signal in S-VHS SP mode, then play it back.
3) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R8 so that 3.58 MHz marker level becomes 3.2 ± 0.2 scale divisions.
4) Record a video sweep signal in S-VHS EP mode, then play it back.
5) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R11 so that 3.58 MHz marker level becomes 2.8 ± 0.2 scale divisions.

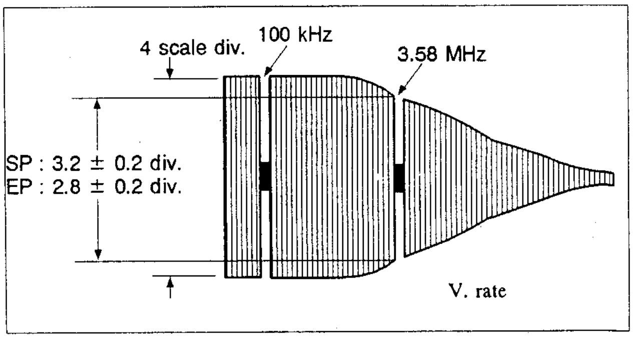


Fig. 3-1-16 S VIDEO EQ

《Alternate method》

1) Record a color bar signal in S-VHS SP mode.
2) Play it back to observe the picture and adjust R8 for best resolution, without impaired S/N.
3) So after adjustment, confirm black or white spot.
4) Record a color bar signal in S-VHS EP mode.
5) Play it back to observe the picture and adjust R11 for best resolution, without impaired S/N.
6) So after adjustment, confirm black or white spot.

9. C comb gain

Signal	•S input •Color bar
Mode	•EE •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP151 (CNR COLOR) [VIDEO board]
Adjustment part	•R108 (COLOR COMB GAIN) [VIDEO board]
Specification	•"A" × 100 ± 5 %

1) Observe waveform at TP151, and make a note of the color level "A", as in Fig. 3-1-17.
2) Short TP154 to TP-GND1 of the video board.
3) Adjust R108 so that the color level becomes 100 ± 5 % of the noted "A" level, as in Fig. 3-1-17.
4) Remove the short wire.

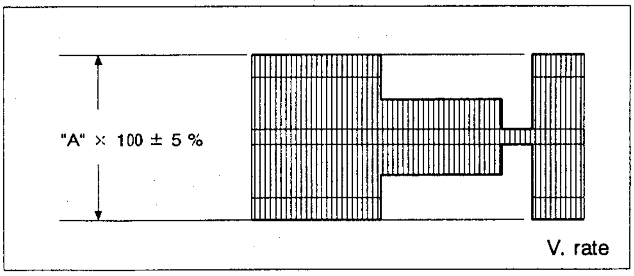


Fig. 3-1-17 C comb gain

10. C comb phase

Signal	•Alignmet tpe [MH-1H] •SP color bar
Mode	•PB
Equipment	•TV monitor
Adjutment part	•L101 (COLOR COMB PHASE) [VIDEO board]
Specification	•Same color

Note: *Confirm that procedure 3.1.4-9. is correct before performing this adjustment procedure.*

1) Connect a S cable between the S input terminal of the TV monitor and S output terminal of this model.
2) Connect 0.047 μ F capacitor between TP411 and TP153 of the video board.
3) Playback the SP color bar signal of the alignment tape.
4) Adjust L101 to obtain magenta portion of color bar picture get same color, especially applied impulse area.

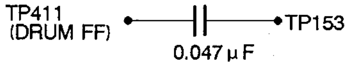


Fig. Capacitor

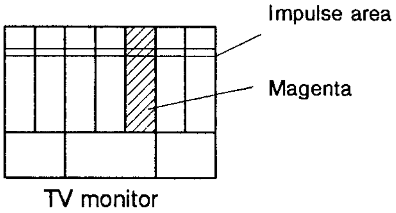


Fig. 3-1-18 C comb phase

11. SP REC color level

Signal	•Alignment tape [MH-1H] •SP color bar
Mode	•PB •REC → PB : SP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP356 (PB COLOR)
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R51 (SP REC COLOUR LEVEL) [REC board]
Specification	•"A" × 140 ± 5 %

1) Playback the SP color bar signal of the alignment tape.
2) Observe waveform at TP356 with external trigger from TP411.
3) Adjust by pressing the tracking buttons on the front panel for maximum color level.
4) Make a note of the higher channel level as "A".
5) Record the color bar signal, and play it back to observe waveform at TP356.
6) Adjust R51 repeatedly in recording so that the higher channel level is "A" × 140 ± 5 % in playback, as in Fig. 3-1-19.

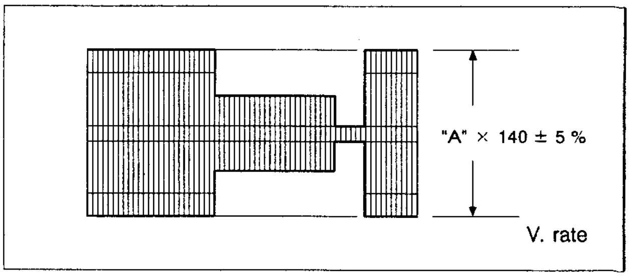


Fig. 3-1-19 SP REC color level

12. EP REC color level

Signal	•Alignment tape [MH-1H] •EP color bar
Mode	•PB •REC → PB : •EP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP356 (PB COLOR)
Ext. trigger	•TP411 (DRUM FF)
Adjustment part	•R49 (EP REC COLOUR LEVEL) [REC board]
Specification	•"A" × 100 ± 5 %

1) Playback the EP color bar signal of the alignment tape.
2) Observe waveform at TP356 with external trigger from TP411.
3) Adjust by pressing the tracking buttons on the front panel for maximum color level.
4) Make a note of the higher channel level as "A".
5) Record the color bar signal, and play it back to observe waveform at TP356.
6) Adjust R49 repeatedly in recording so that the higher channel level is "A" × 100 ± 5 % in playback, as in Fig. 3-1-20.

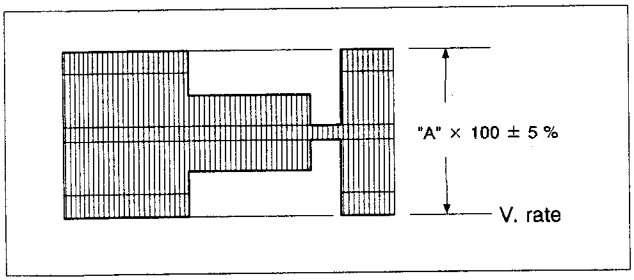


Fig. 3-1-20 EP REC color level

13. LC VCO

Signal	•S input •Color bar
Mode	•REC : SP •S-VHS
Equipment	•Oscilloscope
Measurement point	•Q101 Emitter 〔VIDEO board〕
Adjustment part	•T101 (LC VCO) 〔VIDEO board〕
Specification	•629.36 ± 20.00 kHz

1) Connect 10 kΩ resistor between pin 33 of IC101 of the video board and GND, as in Fig. 3-1-21 (A).
2) Supply a 7 V DC to pin 18 of IC101 of the video board with 1 kΩ resistor, as in Fig. 3-1-21 (B).
3) Supply a 7V DC to pin 30 of IC101 of the video board with 1 kΩ resistor, as in Fig. 3-1-21 (C).
4) Use a jumper jig as shown in Fig. 3-1-21 (D) and connect jumper jig between pin 40 of IC101 and pin 14 of IC101 of the video board.
5) Connect the frequency counter to Emitter of Q101, and confirm that the frequency is 629.36 ± 20.00 kHz.
6) If necessary, adjust T101 for 629.36 ± 20.00 kHz.
7) Remove the jumper jigs.

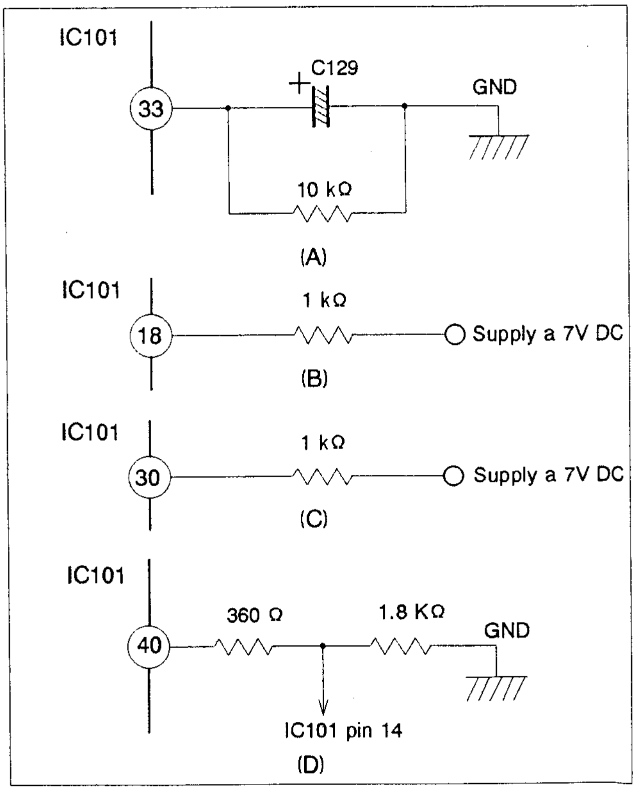


Fig. 3-1-21 LC VCO

3.1.5 AUDIO CIRCUIT

Note: *Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.*

Important:

Item 3. and 4. .

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC1 on the AUDIO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. Audio bias level

Signal	•AUX •No signal
Mode	•REC : EP •N-VHS
Equipment	•Millivoltmeter
Measurement point	•TP31 (BIAS) •TP32 (BIAS GND)
Adjustment part	•R129 (BIAS)
Specification	•3.2 mVrms

1) Connect a millivoltmeter between TP31 and TP32.
2) Set for REC mode without incoming signal.
3) Adjust R129 for 3.2 mVrms.

2. Audio REC FM level

Signal	•AUX •Color bar/no signal
Mode	•REC → PB : EP •S-VHS
Equipment	•Oscilloscope
Measurement point	•TP53 (AUDIO PB FM) [REC board]
Adjustment part	•R216 (FMA REC FM LEVEL) [REC board]
Specification	•60 ± 10 mVp-p.

1) Connect an oscilloscope to TP53.
2) Record a color bar signal without an audio signal in S-VHS EP mode.
3) Adjust R216 so that the lower channel level is 60 mVp-p.
4) Confirm that the higher channel level is 100 ± 10 mVp-p.

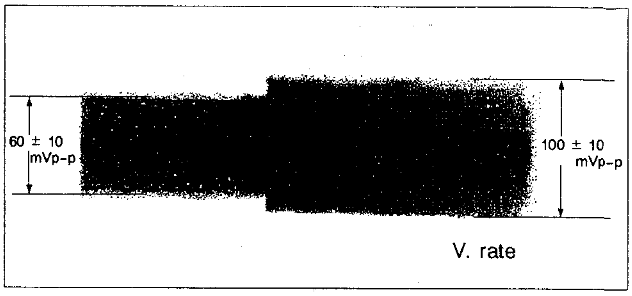


Fig. 3-1-22 Audio REC FM level

3. Carrier frequency adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC1 pin 21 (L ch) [AUDIO UNIT board] •IC1 pin 43 (R ch) [AUDIO UNIT board]
Adjustment part	•R11 (L CARRIER) [AUDIO UNIT board] •R25 (R CARRIER) [AUDIO UNIT board]
Specification	•1.3 MHz ± 5kHz: R11 •1.7 MHz ± 5kHz: R25

1) Connect the frequency counter to IC1 pin 21.
2) Confirm that the frequency is 1.3 MHz ± 5 kHz.
3) If necessary, replace R11 with the variable chip resistor NVP1301-153N and adjust it for 1.3 MHz ± 5kHz.
4) Connect the frequency counter to IC1 pin 43.
5) Confirm that the frequency is 1.7 MHz ± 5 kHz.
6) If necessary, replace R25 with the variable chip resistor NVP1301-153N and adjust it for 1.7 MHz ± 5 kHz.

4. Hi-Fi playback audio level

Signal	•Audio 1 kHz (-8 dBs)
Mode	•REC → PB
Equipment	•Audio oscillator •AC millivoltmeter
Measurement point	•Audio out (L ch) •Audio out (R ch)
Adjustment part	•R5 (L DEVIATION) [AUDIO UNIT board] •R30 (R DEVIATION) [AUDIO UNIT board]
Specification	•-8 dBs ± 1 dBs (0.9 Vp-p, 0.32 Vrms)

1) Connect an audio oscillator to audio input (left channel).
2) Record an audio 1 kHz signal and play it back.
3) Confirm that output level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
4) If necessary, replace R5 with the variable chip resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).
5) Connect an audio oscillator to audio input (right channel).
6) Record an audio 1 kHz and play it back.
7) Confirm that output level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
8) If necessary, replace R30 with the variable chip resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).

3.1.6 TIMER CIRUCIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. Timer clock

Signal	•AUX •No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC601 pin 64
Adjustment part	•C618 (TIMER CLOCK)
Specification	•1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec)

1) Connect the frequency counter to IC601 pin 64 and GND.
2) Short IC601 pin 34 to IC601 pin 63.
3) Short the lead's capacitor C602 once in order to reset IC601.
4) Adjust C618 for 1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec).
5) Disconnect a short wire.

3.1.7 ON SCREEN CIRCUIT

Notes:
- *Unless otherwise specified, all measurement point and adjustment parts are located on the ON SCREEN BOARD.*
- *For the following adjustments, use 1 : 1 probe with input capacitance than 100 pF.*

1. Dot clock

Signal	•AUX •no signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•TP1 round
Adjustment part	•C21 (DOT CLOCK)
Specification	•7.70 ± 0.05 MHz.

1) Connect a frequency counter to TP1 round.
2) Connect a jumper wire pin 3 of IC2 to pin 13 of CN1 and pin 30 of IC2 to pin 15 of CN1.
3) Adjust C21 for 7.70 ± 0.05 MHz.
4) Remove a jumper wires.

3.1.8 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement point and adjustment parts are located on the TUNER BOARD.*

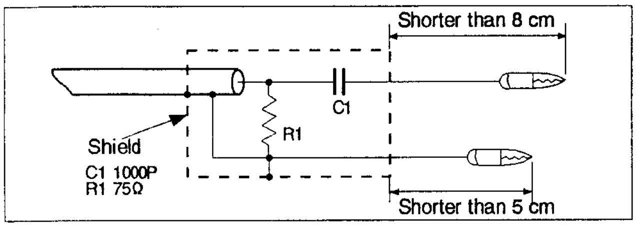


Fig. 3-1-23 Sweeper probe

1. VCO

⟨Factory Method⟩

Signal	•Sweep generator output
Mode	•Tuner (without antenna input Signal)
Equipment	•Oscilloscope •IF sweep signal generator (with suitable markers, PIF, SIF, etc.)
Sweeper probe	• Sweep signal supply cable (See Fig. 3-1-23)
Measurement point	•IC1 pin 17
Adjustment part	•T3 (VCO)
Specification	•45.75 MHz ± 20 kHz

1) Use a sweeper probe as shown in Fig.3-1-23 and connect the sweep generator output to pin 1 of SAW1.
2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope.
3) Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T3 to align the waveform with the frequency marker as shown in Fig. 3-1-24.

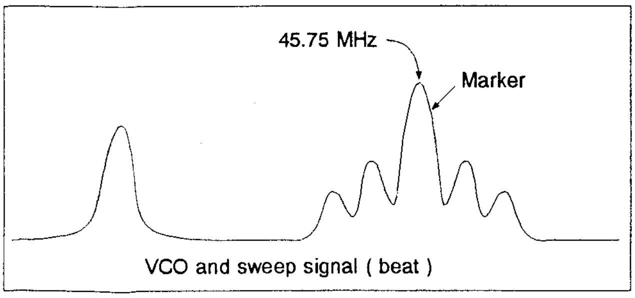


Fig. 3-1-24 VCO coil

《Alternate method》

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Monitor-TV
Other condition	•Same

1) Receive a color broadcasting on a VHF-HI channel (7 to 13).
2) Adjust T3 to obtain a fine picture on the monitor-TV.
3) Find both sides of range of pull in and adjust to the center point.
4) Select other channels to confirm proper channel selection.

2. RF AGC

Note: *Before the following adjustment,*

1) Connect a cable to ANT IN and terminate TV OUT with 75 ohms.

2) Set a TV channel signal generator as follows.

Video : 70 dBμ 75 Ω, color bar 87.5 % modulation

Audio : 62 dBμ 75 Ω, 1 kHz ± 25 kHz deviation

⟨Factory Method⟩

Signal	•TV broadcasting •Color bar
Mode	•Tuner
Equipment	•Oscilloscope •TV signal generator
Measurement point	•IF terminal (U/V tuner)
Adjustment part	•R19 (RF AGC)
Specification	•-7 ± 1 dB from maximum level (with minimum noise)

1) Connect the oscilloscope to IF terminal of U/V tuner (front end).
2) Adjust R19 for maximum level, then adjust R19 to reduce the IF level -7.0 dB from the maximum level.

《Alternate method》

Note: *Adjust R19 (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

1) Adjust R19 to minimize noise or streaks on the TV screen.
2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3. AFC

⟨Factory Method⟩

Signal	•TV broadcasting •Color bar
Mode	•Tuner •AFC : OFF
Equipment	•Oscilloscope •TV signal generator
Measurement point	•CN3 pin 8 (S CURVE OUT)
Adjustment part	•T2 (AFC)
Specification	•2.2 ± 0.2 V DC

1) Receive a color bar signal.
2) Connect an oscilloscope to pin 8 of CN3 and set the oscilloscope to DC mode.
3) Adjust T2 to set the lower edge of the ripple waveform to 2.2 V DC.

⟪Alternate method⟫

1) Receive a color broadcast on a VHF-HI channel (7 to 13).
2) Connect an oscilloscope to pin 8 of CN3 and set the oscilloscope to DC mode.
3) Adjust T2 to set the lower edge of the ripple waveform to 2.2 V DC.

4. Sound DET.

⟨Factory Method⟩

Signal	•TV broadcasting
Mode	•Tuner •AFC : OFF
Equipment	•Distortion meter •TV signal generator
Measurement point	•IC1 pin 1 (FM DET)
Adjustment part	•T1 (FM DET)
Specification	•Minimum distortion (less than 0.5 %)

1) Use a adjustment circuit, and connect a distortion meter as shown in Fig. 3-1-24.
3) Adjust T1 for minimum distortion (less than 0.5 %).

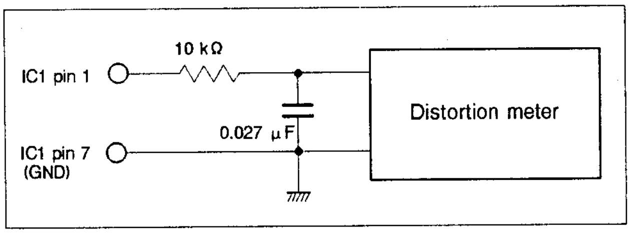


Fig. 3-1-25 Sound DET. (Adjustment circuit)

⟪Alternate method⟫

1) Receive a color broadcast on a VHF-HI channel (7 to 13).
2) Connect an oscilloscope to pin 1 of IC1.
3) Adjust T1 for maximum level at audio sound.

3.1.9 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the TUNER BOARD.*

1. Stereo VCO adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC201 pin 23
Adjustment part	•R218 (STEREO VCO)
Specification	•15.73 ± 0.05 kHz

1) Connect the 20 kΩ resistor between pin 10 of IC201 and pin 13 of IC201.
2) Connect the frequency counter to pin 23 of IC201.
3) Adjust R218 for 15.73 ± 0.05 kHz.

2. Low pass filter adjustment

Signal	•No signal
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC201 pin 14
Adjustment part	•R219 (FILTER)
Specification	•Minimize

1) Connect a oscilloscope to pin 14 of IC201.
2) Adjust R219 for minimum waveform.

3. Stereo separation adjustment

Signal	•Sweep generator output (96 dBμ, 1 kHz)
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC201 pin 29
Adjustment part	•R216 (SEPARATION-1) •R217 (SEPARATION-2)
Specification	•Minimize

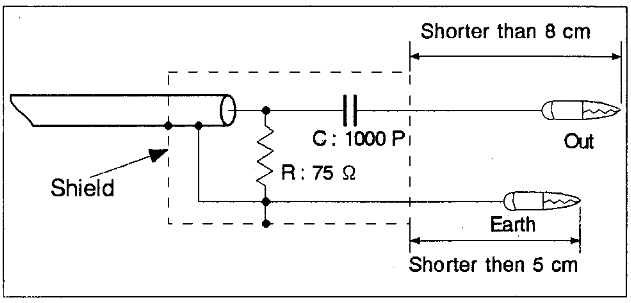
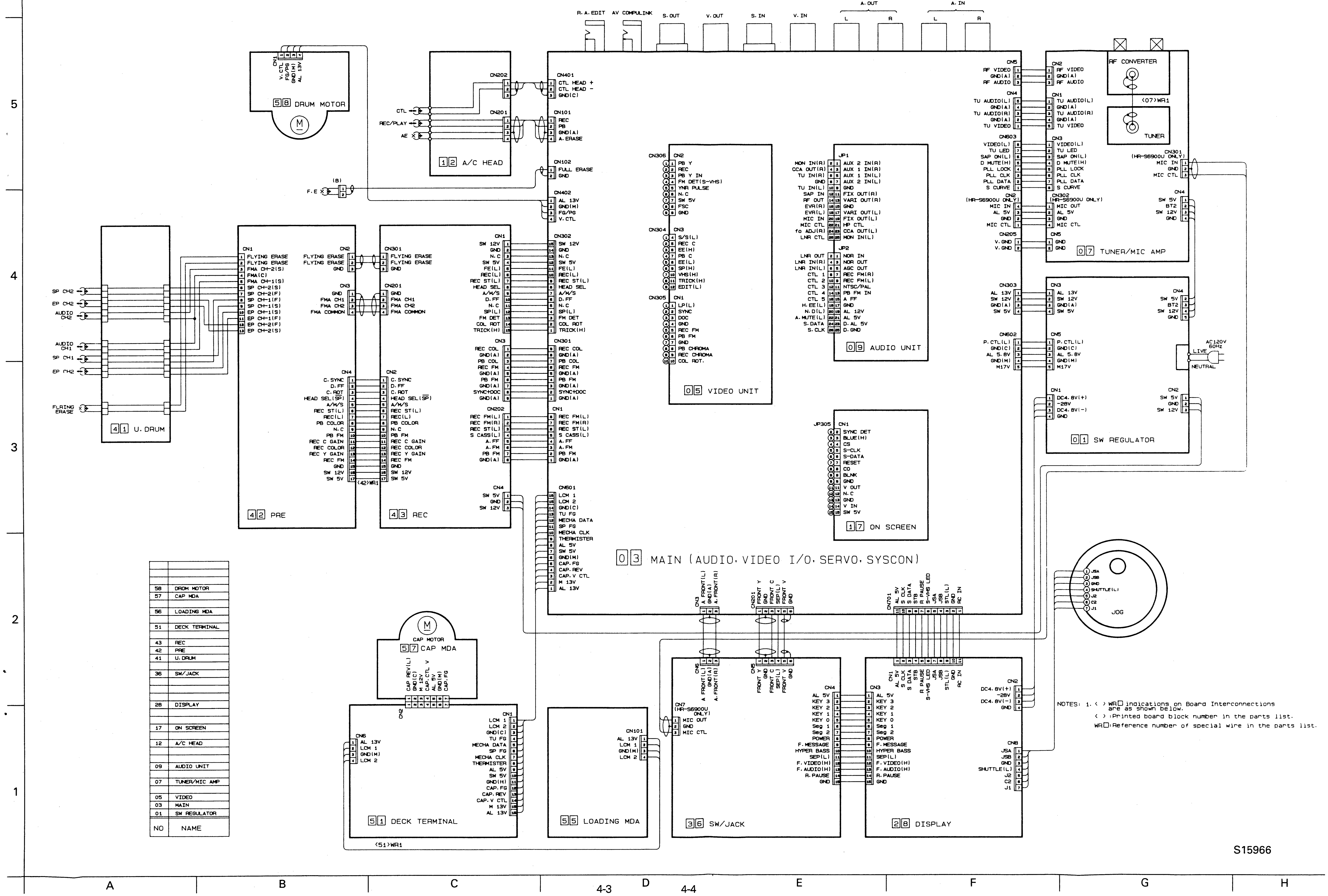


Fig. 3-1-26 Sweeper probe

1) Use a sweeper probe as shown in Fig. 3-1-26.
2) Supply 300 Hz L-only modulated IF signal to IF terminal of U/V tuner (front end).
3) Connect an oscilloscope to pin 29 of IC201.
4) Adjust R216 for minimum output level.
5) Supply 5 kHz L-only modulated IF signal to IF terminal of U/V tuner (front end).
6) Connect an oscilloscope to pin 29 of IC201.
7) Adjust R217 for minimum output level.

4.1 BOARD INTERCONNECTIONS



58 DRUM MOTOR
12 A/C HEAD
41 U. DRUM
42 PRE
43 REC
05 VIDEO UNIT
09 AUDIO UNIT
17 ON SCREEN
07 TUNER/MIC AMP
01 SW REGULATOR
03 MAIN (AUDIO, VIDEO I/O, SERVO, SYSCON)
57 CAP MDA
51 DECK TERMINAL
55 LOADING MDA
36 SW/JACK
28 DISPLAY
JOG
RF CONVERTER
TUNER
R. A. EDIT
AV COMPULINK
S. OUT
V. OUT
S. IN
V. IN
A. OUT
A. IN
L
R
AC120V 60Hz
LIVE
NEUTRAL
<07>WR1
<42>WR1
<51>WR1
CAP MOTOR
A
B
C
D
E
F
G
H
1
2
3
4
5
6

NO	NAME
58	DROM MOTOR
57	CAP MDA
56	LOADING MDA
51	DECK TERMINAL
43	REC
42	PRE
41	U. DRUM
36	SW/JACK
28	DISPLAY
17	ON SCREEN
12	A/C HEAD
09	AUDIO UNIT
07	TUNER/MIC AMP
05	VIDEO
03	MAIN
01	SW REGULATOR

NOTES: 1. < > WR☐ indications on Board Interconnections are as shown below.

< > :Printed board block number in the parts list.

WR☐:Reference number of special wire in the parts list.

S15966

SECTION 4
CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

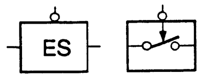
1. Schematic diagram values

Unless otherwise specified.

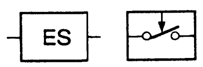
1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values in µH, (m: mH).
4) All diodes are 1SS133 or MA165, (refer to parts list).

2. Indications

AUX : Active only at high.
$\overline{\text{AUX}}$: Active only at low.

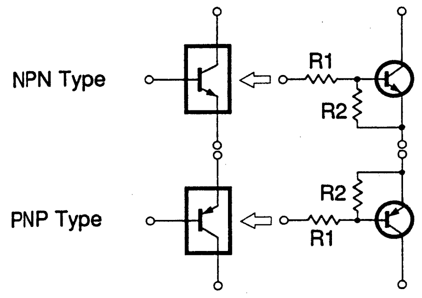


Active only at low for electronic switch.

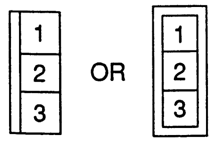


Active only at high for electronic switch.

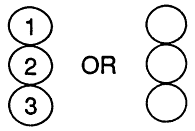
Digital transistor :
The digital transistor includes built in resistors.
It features small size and high reliability.


NPN Type
R1
R2
PNP Type
R2
R1

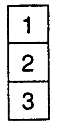
3. Interpreting Connector indications



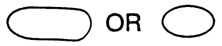
Removable connector



Direct connection on board



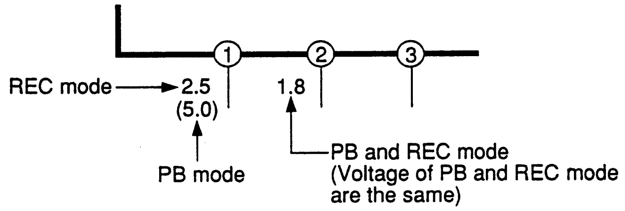
Non-removable Board connector



Connected pattern on board

4. Voltage measurement

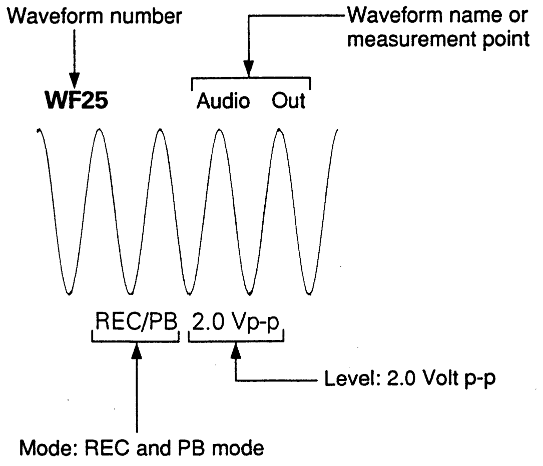
1) Voltage chart
   REC : Color bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, color bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio section
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera Section
   Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the E-E mode.
4) Schematic diagram
   Voltage Indications for REC and PB mode on Schematic are as shown below.


1
2
3
REC mode
2.5
(5.0)
PB mode
1.8
PB and REC mode
(Voltage of PB and REC mode are the same)

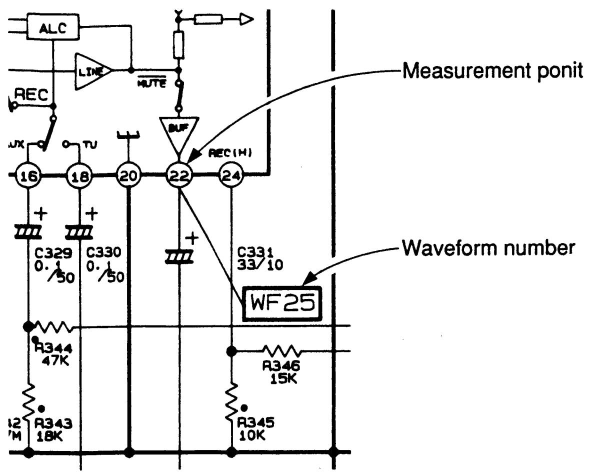
5. Waveform measurement

1) Waveform chart
   REC : Color bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, color bar SP mode, normal VHS mode.
2) Audio Section
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera Section
   Measured as the grey scale or color bar pattern which lighted up brightly is shot in the E-E mode.

Example:


Waveform number
Waveform name or measurement point
WF25
Audio Out
REC/PB
2.0 Vp-p
Level: 2.0 Volt p-p
Mode: REC and PB mode

4) Schematic diagram
   Waveform indications on schematic are as shown below.


ALC
LINE
MUTE
REC
BUF
REC(H)
16
18
20
22
24
C329 0.1/50
C330 0.1/50
C331 33/10
WF25
R344 47K
R343 18K
R346 15K
R345 10K
Measurement ponit
Waveform number

6. Signal path Symbols

The arrows indicate the signal path as follows.

⇨	Playback signal path
▭▶	Playback and recording signal path
➡	Recording signal path (including E-E signal path)
▬▷	Y signal path
▭▷▷	Color (Chroma) signal path
▭▶▷	R or R-Y signal path
▬▶▷	B or B-Y signal path
▭▷▶	Capstan servo path
▭▶▶	Drum servo path
▬▶▶	Reel servo path

CIRCUIT BOARD NOTES

1. Color indications

1) Foil side :
   Foil side patterns are indicated at gray shading.
2) Component side :
   Component side patterns are indicated at RED shading.

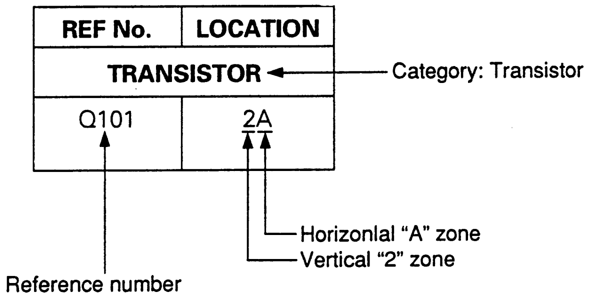
Notes:

Foil side (B side) ;
Parts on the foil side seen from foil face (pattern face) are indicated.

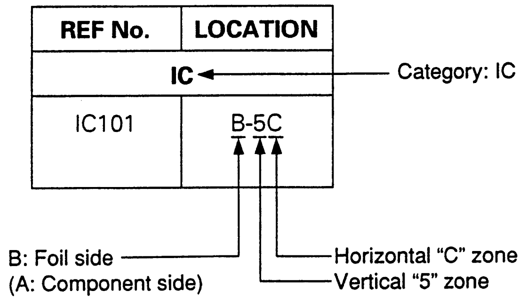
Component side (A side) ;
Parts on the component side seen from component face (parts face) are indicated.

2. Location of SMC indications

1) Single pattern :


REF No.
LOCATION
TRANSISTOR
Category: Transistor
Q101
2A
Horizonlal "A" zone
Vertical "2" zone
Reference number

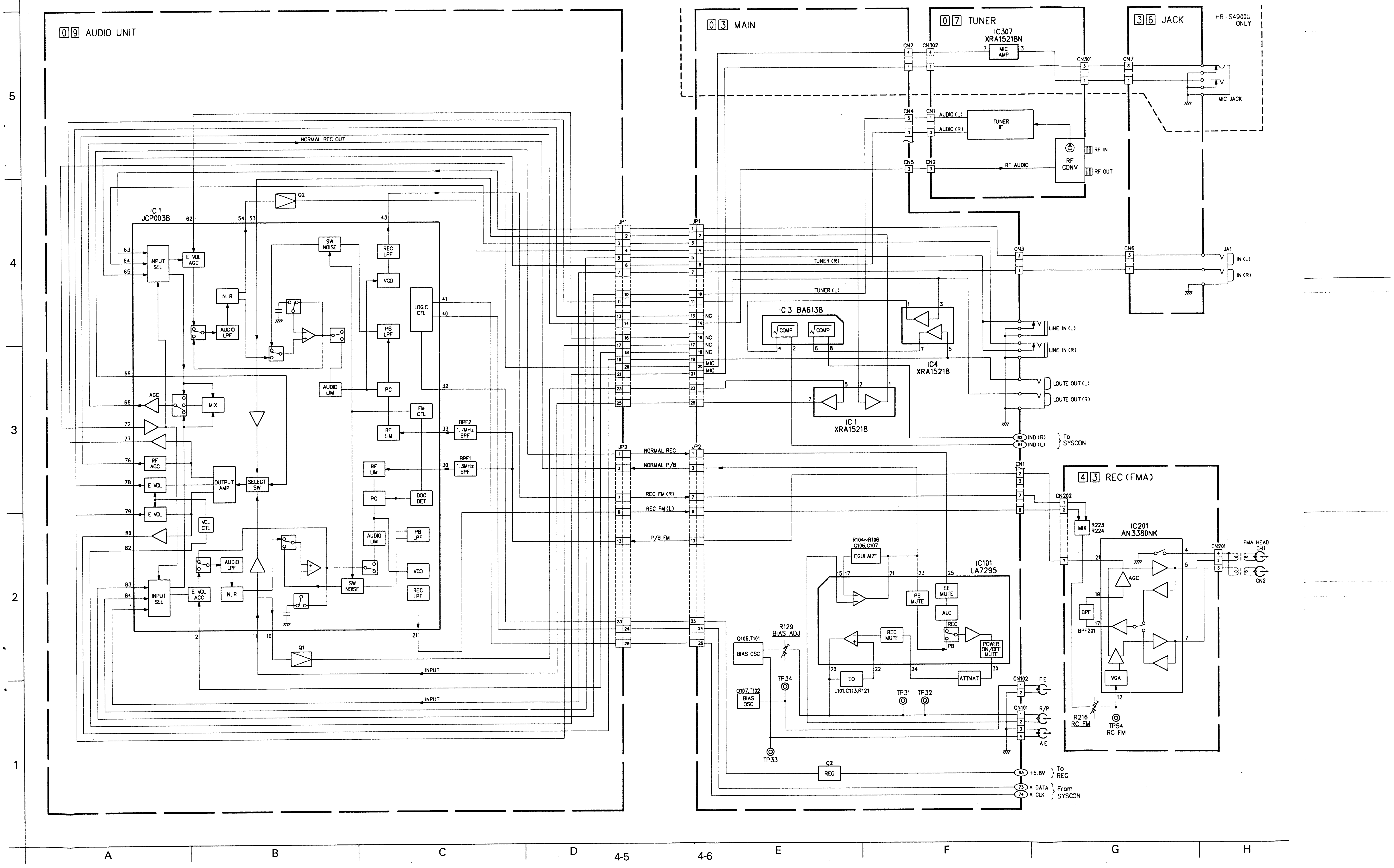
2) Double pattern :


REF No.
LOCATION
IC
Category: IC
IC101
B-5C
B: Foil side
(A: Component side)
Horizontal "C" zone
Vertical "5" zone

Notes:

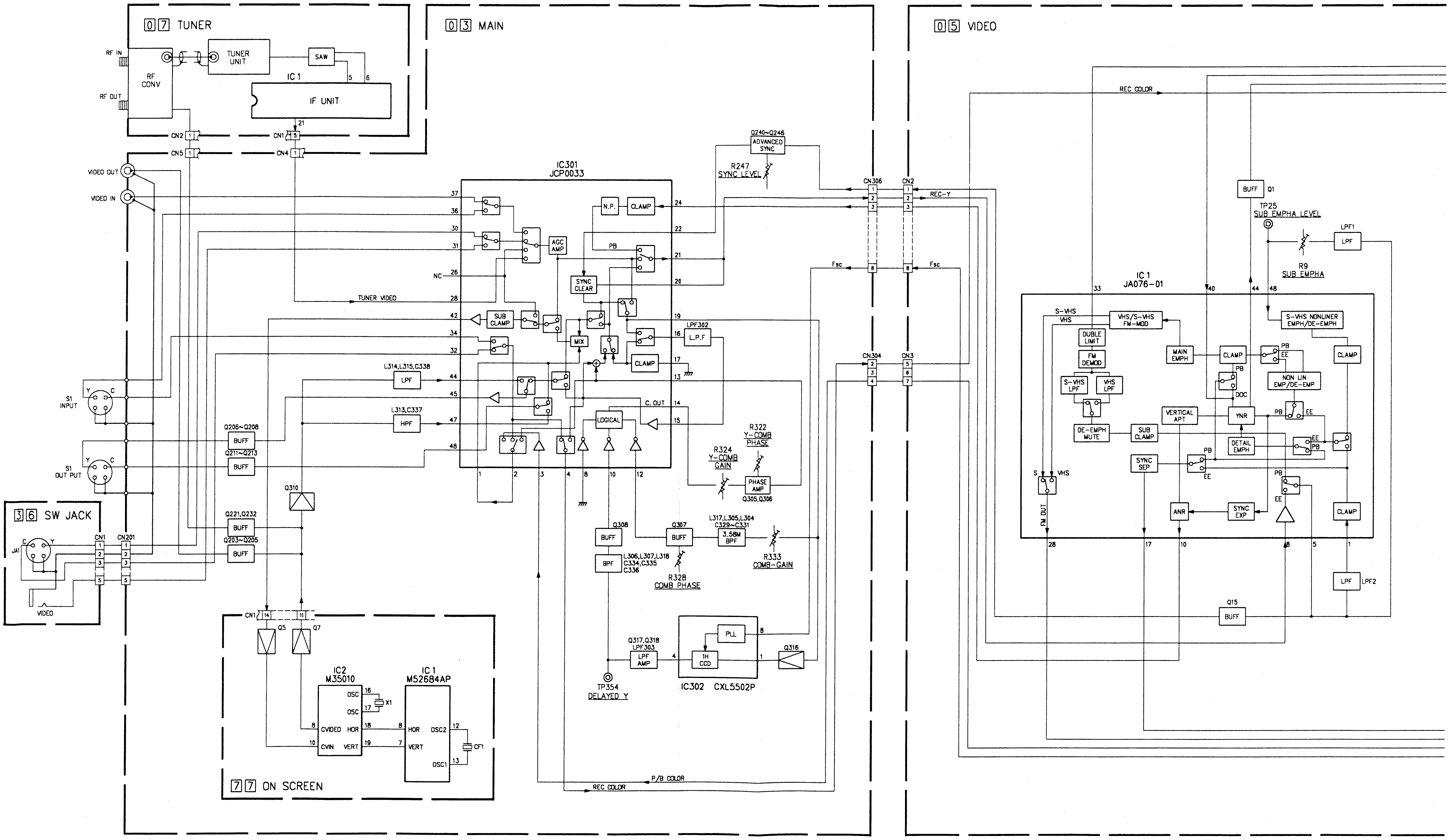
1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION No. 82054C (May 1991).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

4.2 AUDIO BLOCK DIAGRAM

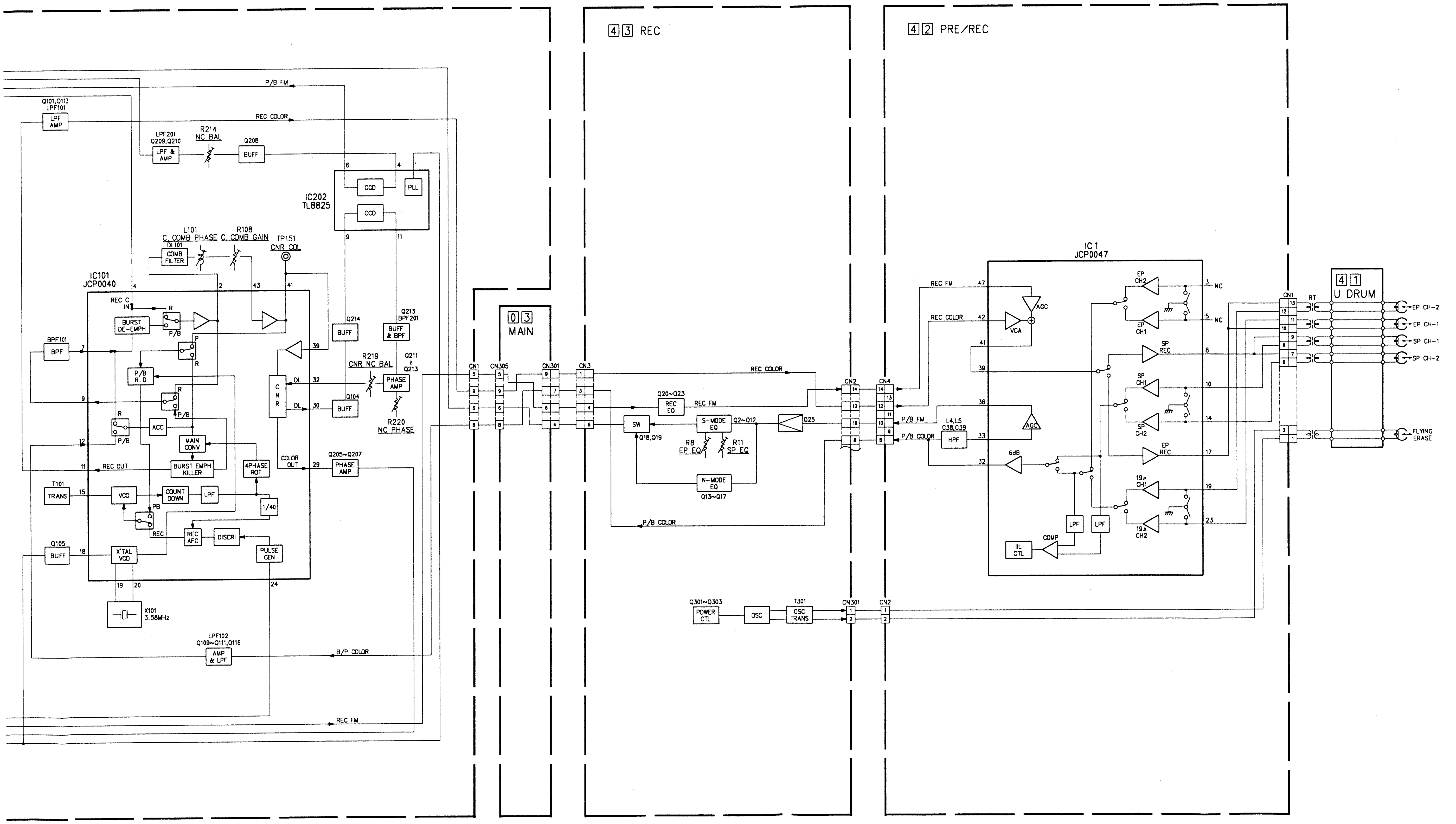


09 AUDIO UNIT
IC1 JCP0038
INPUT SEL
E VOL AGC
N. R
AUDIO LPF
SW NOISE
REC LPF
VCO
PB LPF
LOGIC CTL
PC
AUDIO LIM
FM CTL
RF LIM
BPF2 1.7MHz BPF
BPF1 1.3MHz BPF
DOC DET
AGC
MIX
RF AGC
E VOL
OUTPUT AMP
SELECT SW
VOL CTL
Q1
Q2
NORMAL REC OUT
INPUT
JP1
JP2
03 MAIN
07 TUNER
IC307 XRA15218N
MIC AMP
TUNER IF
AUDIO (L)
AUDIO (R)
RF AUDIO
RF CONV
RF IN
RF OUT
36 JACK
HR-S4900U ONLY
MIC JACK
CN2
CN302
CN301
CN7
CN4
CN1
CN5
CN3
CN6
JA1
IN (L)
IN (R)
TUNER (R)
TUNER (L)
NC
MIC
IC3 BA6138
COMP
IC4 XRA15218
IC1 XRA15218
LINE IN (L)
LINE IN (R)
LOUTE OUT (L)
LOUTE OUT (R)
IND (R)
IND (L)
To SYSCON
NORMAL REC
NORMAL P/B
REC FM (R)
REC FM (L)
P/B FM
43 REC (FMA)
CN202
MIX
R223 R224
IC201 AN3380NK
AGC
BPF
BPF201
VGA
CN201
FMA HEAD CH1
CN2
R216 RC FM
TP54 RC FM
R104~R106 C106,C107
EQULAIZE
IC101 LA7295
PB MUTE
EE MUTE
ALC
REC MUTE
REC
PB
POWER ON/OFF MUTE
EQ
L101,C113,R121
ATTNAT
R129 BIAS ADJ
Q106,T101 BIAS OSC
Q107,T102 BIAS OSC
TP34
TP33
TP31
TP32
CN102
F E
CN101
R/P
A E
Q2 REG
+5.8V
To REG
A DATA
A CLK
From SYSCON
A B C D E F G H
1 2 3 4 5 6

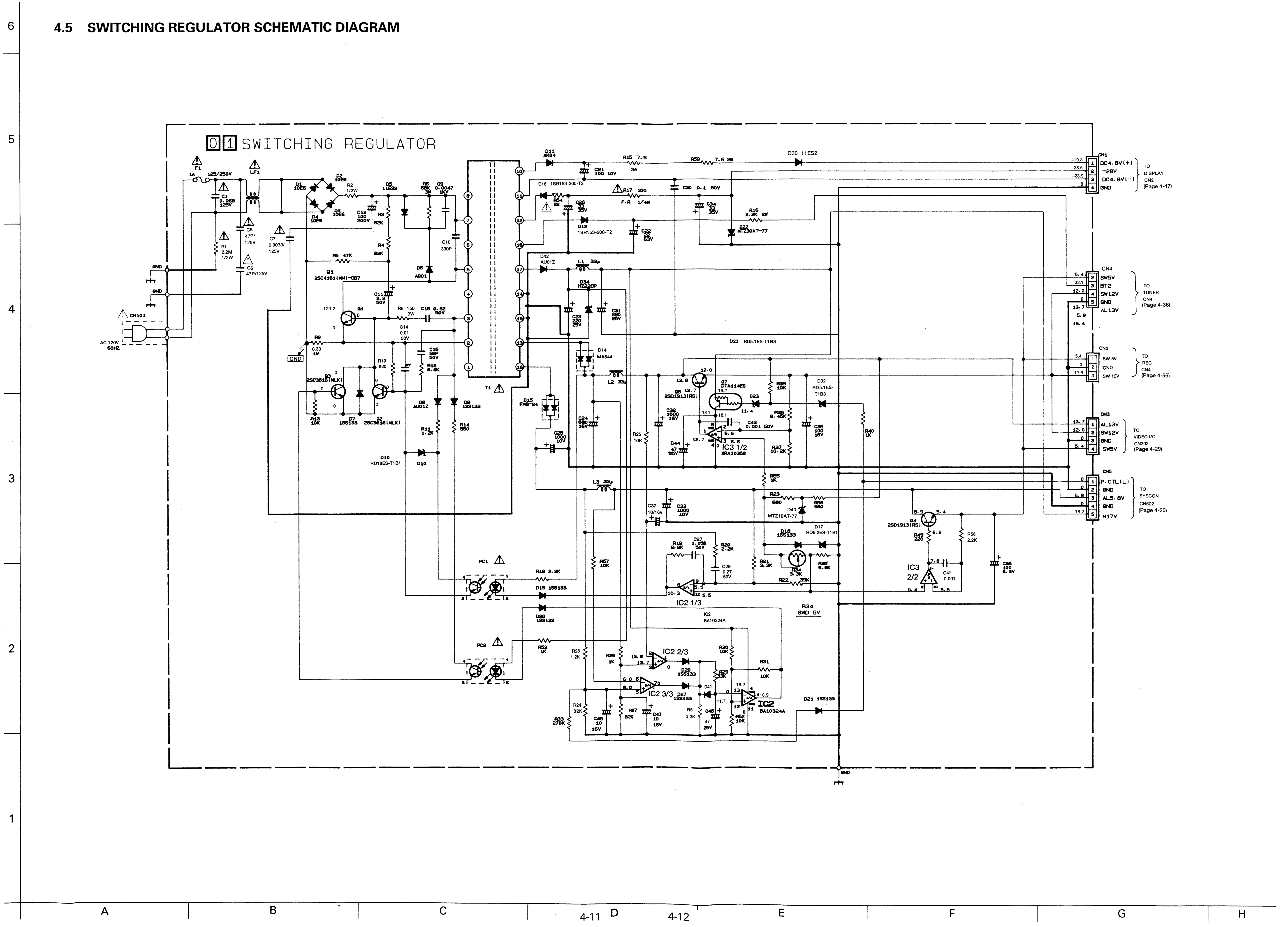
4.3 VIDEO BLOCK DIAGRAM -1)


07 TUNER
RF IN
RF OUT
RF CONV
TUNER UNIT
SAW
IC 1
IF UNIT
CN2
CN1
CN5
CN4
03 MAIN
VIDEO OUT
VIDEO IN
S1 INPUT
S1 OUT PUT
36 SW JACK
JA1
VIDEO
CN1
CN201
Q206~Q208
Q211~Q213
Q221,Q232
Q203~Q205
BUFF
Q310
IC301
JCP0033
AGC AMP
N.P.
CLAMP
PB
SYNC CLEAR
SUB CLAMP
MIX
LOGICAL
C. OUT
NC
TUNER VIDEO
L314,L315,C338
LPF
L313,C337
HPF
LPF302
L.P.F
Q240~Q246
ADVANCED SYNC
R247
SYNC LEVEL
R322
Y-COMB PHASE
R324
Y-COMB GAIN
PHASE AMP
Q305,Q306
Q308
Q307
BPF
L306,L307,L318
C334,C335
C336
L317,L305,L304
C329~C331
3.58M BPF
R333
COMB-GAIN
R328
COMB PHASE
Q317,Q318
LPF303
LPF AMP
TP354
DELAYED Y
PLL
1H CCD
IC302 CXL5502P
Q316
P/B COLOR
REC COLOR
77 ON SCREEN
Q5
Q7
IC2
M35010
CVIDEO
CVIN
HOR
VERT
OSC
X1
IC 1
M52684AP
OSC2
OSC1
CF1
CN306
CN2
CN304
CN3
REC-Y
Fsc
05 VIDEO
REC COLOR
BUFF
Q1
TP25
SUB EMPHA LEVEL
LPF1
R9
SUB EMPHA
IC 1
JA076-01
S-VHS
VHS
VHS/S-VHS FM-MOD
DUBLE LIMIT
FM DEMOD
S-VHS LPF
VHS LPF
DE-EMPH MUTE
SUB CLAMP
MAIN EMPH
VERTICAL APT
SYNC SEP
CLAMP
YNR
DOC
EE
DETAIL EMPH
ANR
SYNC EXP
S-VHS NONLINER EMPH/DE-EMPH
NON LIN EMP/DE-EMP
S
FM OUT
LPF2
Q15

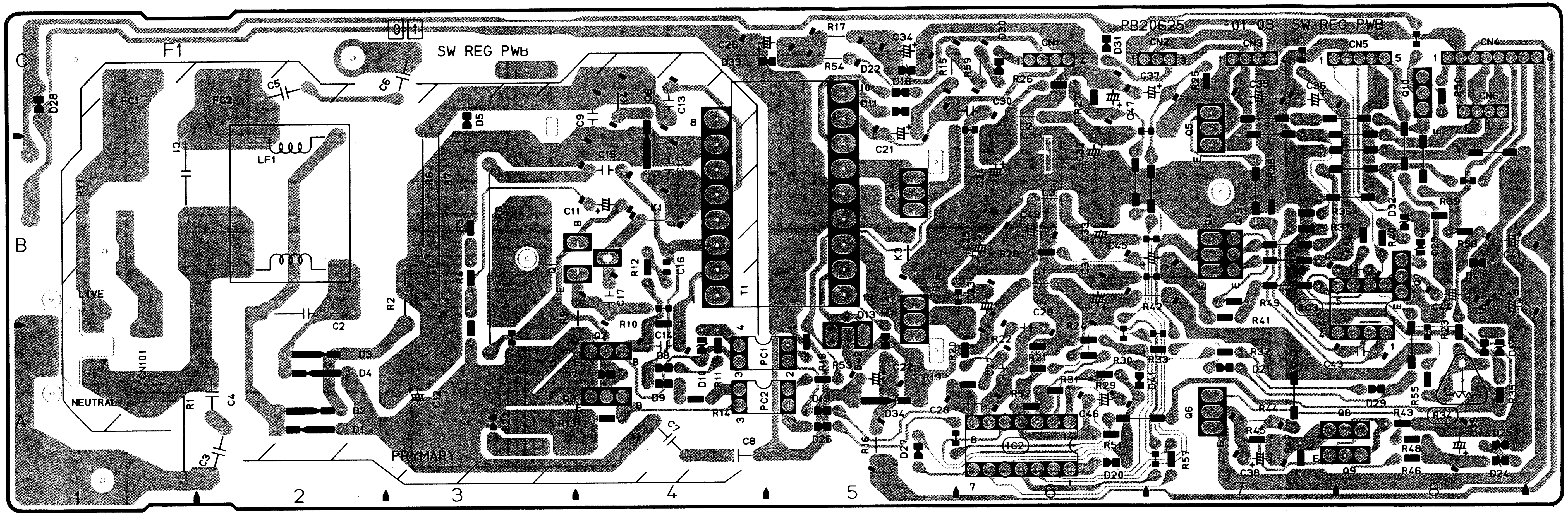
4.4 VIDEO BLOCK DIAGRAM -2)


4 3 REC
4 2 PRE/REC
0 3 MAIN
4 1 U DRUM
P/B FM
REC COLOR
Q101,Q113
LPF101
LPF AMP
LPF201
Q209,Q210
LPF & AMP
R214
NC BAL
Q208
BUFF
IC202
TL8825
CCD
CCD
PLL
6
4
1
9
11
L101
C. COMB PHASE
R108
C. COMB GAIN
DL101
COMB FILTER
TP151
CNR COL
IC101
JCP0040
4
2
43
41
REC C IN
BURST DE-EMPH
R
P/B
P
R
BPF101
BPF
7
P/B R.D
9
R
P/B
R
P/B
ACC
12
MAIN CONV
11
REC OUT
BURST EMPH KILLER
4PHASE ROT
T101
TRANS
15
VCO
COUNT DOWN
LPF
1/40
PB
REC
REC AFC
DISCRI
Q105
BUFF
18
X'TAL VCO
PULSE GEN
19
20
24
X101
3.58MHz
39
C N R
DL
32
DL
30
COLOR OUT
29
Q214
BUFF
Q213
BPF201
BUFF & BPF
R219
CNR NC BAL
Q211 ~ Q213
PHASE AMP
Q104
BUFF
R220
NC PHASE
Q205~Q207
PHASE AMP
LPF102
Q109~Q111,Q116
AMP & LPF
B/P COLOR
REC FM
CN1
CN305
CN301
CN3
5
9
6
8
5
9
6
8
9
7
6
4
1
3
4
6
REC COLOR
Q20~Q23
REC EQ
REC FM
SW
Q18,Q19
S-MODE EQ
Q2~Q12
Q25
R8
EP EQ
R11
SP EQ
N-MODE EQ
Q13~Q17
P/B COLOR
CN2
14
12
10
8
CN4
14
13
12
11
10
9
8
Q301~Q303
POWER CTL
OSC
T301
OSC TRANS
CN301
1
2
CN2
1
2
IC 1
JCP0047
REC FM
47
REC COLOR
42
VCA
AGC
41
39
36
AGC
P/B FM
L4,L5
C38,C39
HPF
P/B COLOR
33
32
6dB
EP CH2
EP CH1
3
NC
5
NC
SP REC
8
SP CH1
10
SP CH2
14
EP REC
17
19μ CH1
19
19μ CH2
23
LPF
LPF
COMP
IIL CTL
CN1
13
12
11
10
9
8
7
6
2
1
RT
EP CH-2
EP CH-1
SP CH-1
SP CH-2
FLYING ERASE

4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM


01 SWITCHING REGULATOR
F1
1A
125/250V
LF1
C1 0.068 125V
R1 2.2M 1/2W
C5 47P/125V
C6 47P/125V
C7 0.0033/125V
GND
CN101
AC 120V 60HZ
D1 10E6
D2 10E6
D3 10E6
D4 10E6
R2 1/2W
D5 11ES2
C12 100 200V
R3 82K
R4 82K
R6 68K 3W
C9 0.0047 1KV
C10 330P
D6 A901
R5 47K
Q1 2SC4161(MN)-CB7
C11 2.2 50V
R8 150 3W
C15 0.82 50V
C14 0.01 50V
129.2
R9 0.33 1W
C16 56P 50V
R10 820
R12 6.8K
Q3 2SC3616(MLK)
Q2 2SC3616(MLK)
R13 10K
D7 1SS133
D8 AU01Z
D9 1SS133
R11 1.2K
R14 560
D10 RD18ES-T1B1
T1
D11 AK04
C21 100 10V
R15 7.5 2W
R59 7.5 2W
D30 11ES2
D16 1SR153-200-T2
R54 22
C26 33 35V
R17 100 F.R 1/4W
C30 0.1 50V
C34 33 35V
R16 2.2K 2W
D22 MTZ30AT-77
D12 1SR153-200-T2
C22 22 63V
D42 AU01Z
L1 33μ
D34 HZ22CP
C23 220 25V
C31 220 25V
D23 RD5.1ES-T1B3
D14 MA644
L2 33μ
D15 FMB-24
C24 680 16V
C25 1000 10V
R25 10K
C32 1000 16V
C44 47 25V
Q5 2SD1913(RS)
Q7 DTA114ES
R39 10K
D32 RD5.1ES-T1B3
R36 6.45K
C43 0.001 50V
C35 100 16V
R37 10.2K
R40 1K
IC3 1/2 XRA10358
L3 33μ
C37 10/16V
C33 1000 10V
R55 1K
R23 680
R58 680
D40 MTZ10AT-77
D17 RD6.2ES-T1B1
D18 1SS133
R19 2.2K
C27 0.056 50V
R20 2.2K
C29 0.27 50V
R21 3.3K
R34 3.3K
R35 6.8K
R22 39K
R57 10K
IC2 1/3
R34 SWD 5V
Q4 2SD1913(RS)
R49 220
R56 2.2K
IC3 2/2
C42 0.001
C36 100 6.3V
PC1
R18 2.2K
D19 1SS133
D26 1SS133
PC2
R53 1K
IC2 BA10324A
R28 1.2K
R26 1K
IC2 2/3
R30 10K
D20 1SS133
R29 33K
R31 10K
IC2 3/3
D27 1SS133
D41
IC2 BA10324A
R24 82K
R33 270K
C45 10 16V
R27 82K
C47 10 16V
R51 3.3K
C46 47 25V
R52 10K
D21 1SS133
GND
CN1
DC4.8V(+)
-28V
DC4.8V(-)
GND
TO DISPLAY CN2 (Page 4-47)
CN4
SW5V
BT2
SW12V
GND
AL13V
TO TUNER CN4 (Page 4-36)
CN2
SW 5V
GND
SW 12V
TO REC CN4 (Page 4-56)
CN3
AL13V
SW12V
GND
SW5V
TO VIDEO I/O CN303 (Page 4-29)
CN5
P.CTL(L)
GND
AL5.8V
GND
M17V
TO SYSCON CN602 (Page 4-20)
6
5
4
3
2
1
A
B
C
D
E
F
G
H

4.6 SWITCHING REGULATOR CIRCUIT BOARD


PB20625-01-03 SW REG PWB
SW REG PWB
0 1
F1
FC1
FC2
LF1
RY1
LIVE
NEUTRAL
CN101
PRYMARY
T1
CN1
CN2
CN3
CN4
CN5
CN6
IC2
IC3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
PC1
PC2
R34
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D16
D17
D18
D19
D20
D21
D22
D24
D25
D26
D27
D28
D29
D30
D31
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D33
D34
D40
D41
D42
C1
C2
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C36
C37
C38
C40
C43
C45
C46
C47
R1
R2
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
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R23
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R29
R30
R31
R32
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R36
R37
R38
R39
R41
R42
R43
R44
R45
R46
R48
R49
R50
R51
R52
R53
R54
R55
R57
R58
R59
K1
K3
A
B
C
1
2
3
4
5
6
7
8

MAIN COMPONENT LOCATION GUIDE
<SW REG BOARD>

REF No.	LOCATION
IC	
IC2	6A
IC3	8B

REF No.	LOCATION
TRANSISTOR	
Q1	4B
Q2	4A
Q3	4A
Q4	7B
Q5	7C
Q7	8B

REF No.	LOCATION
DIODE	
D1	2A
D2	2A
D3	2A
D4	2A
D5	3C
D6	4C
D7	4A
D8	4A
D9	4A
D10	4A
D11	5C
D12	5B
D14	5B
D15	5B
D16	5C
D17	8A
D18	8A
D19	5A
D20	6A
D21	7A
D22	5C
D23	8B
D26	5A
D27	5A
D30	6C
D32	8B
D34	5A
D40	8B
D41	6A
D42	5A

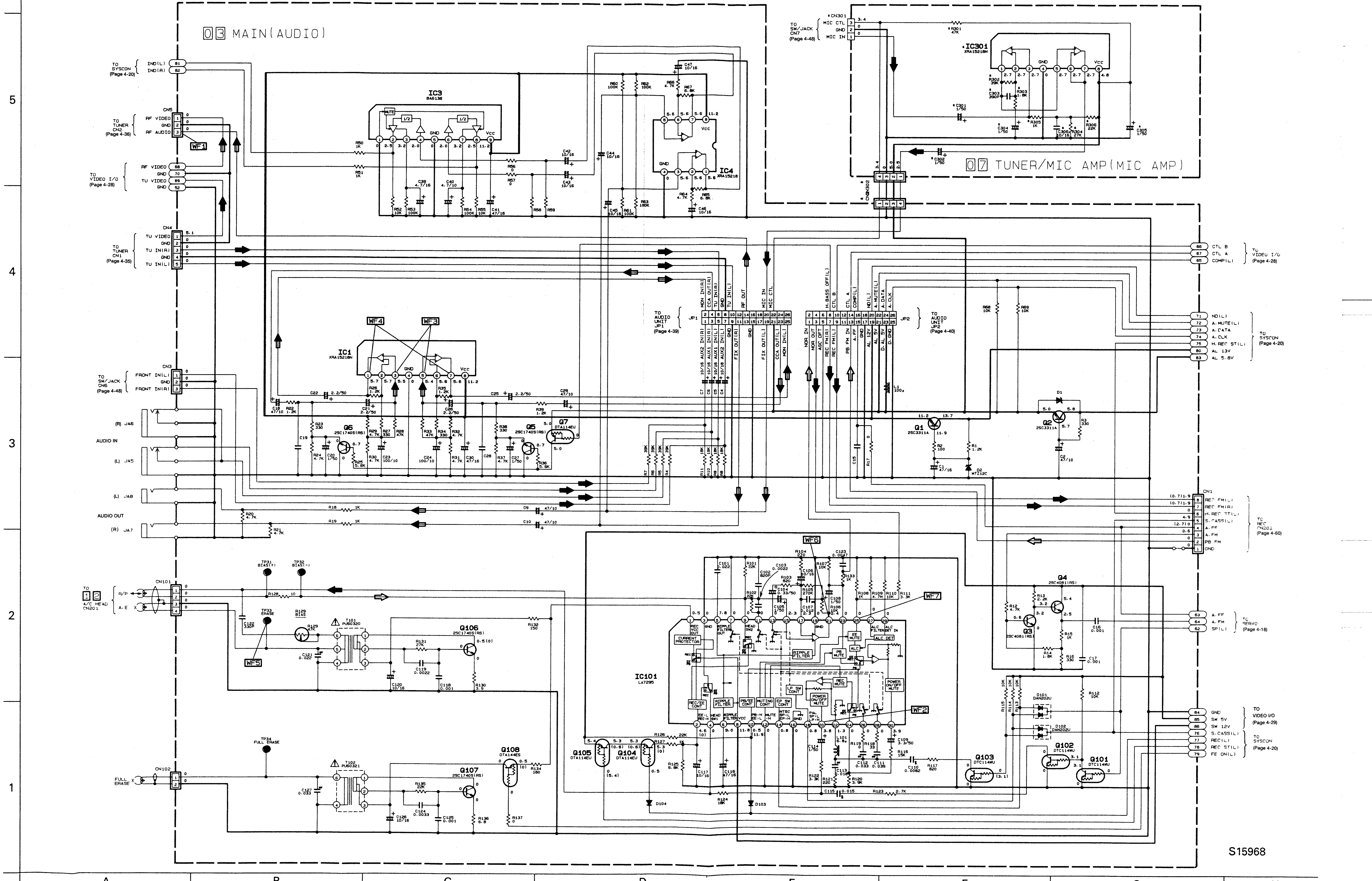
REF No.	LOCATION
CONNECTOR	
CN1	6C
CN2	7C
CN3	7C
CN4	8C
CN5	8C
CN101	1A

REF No.	LOCATION
ADJUSTMENT	
R34	8A

4.7 AUDIO AND MIC AMP SCHEMATIC DIAGRAMS

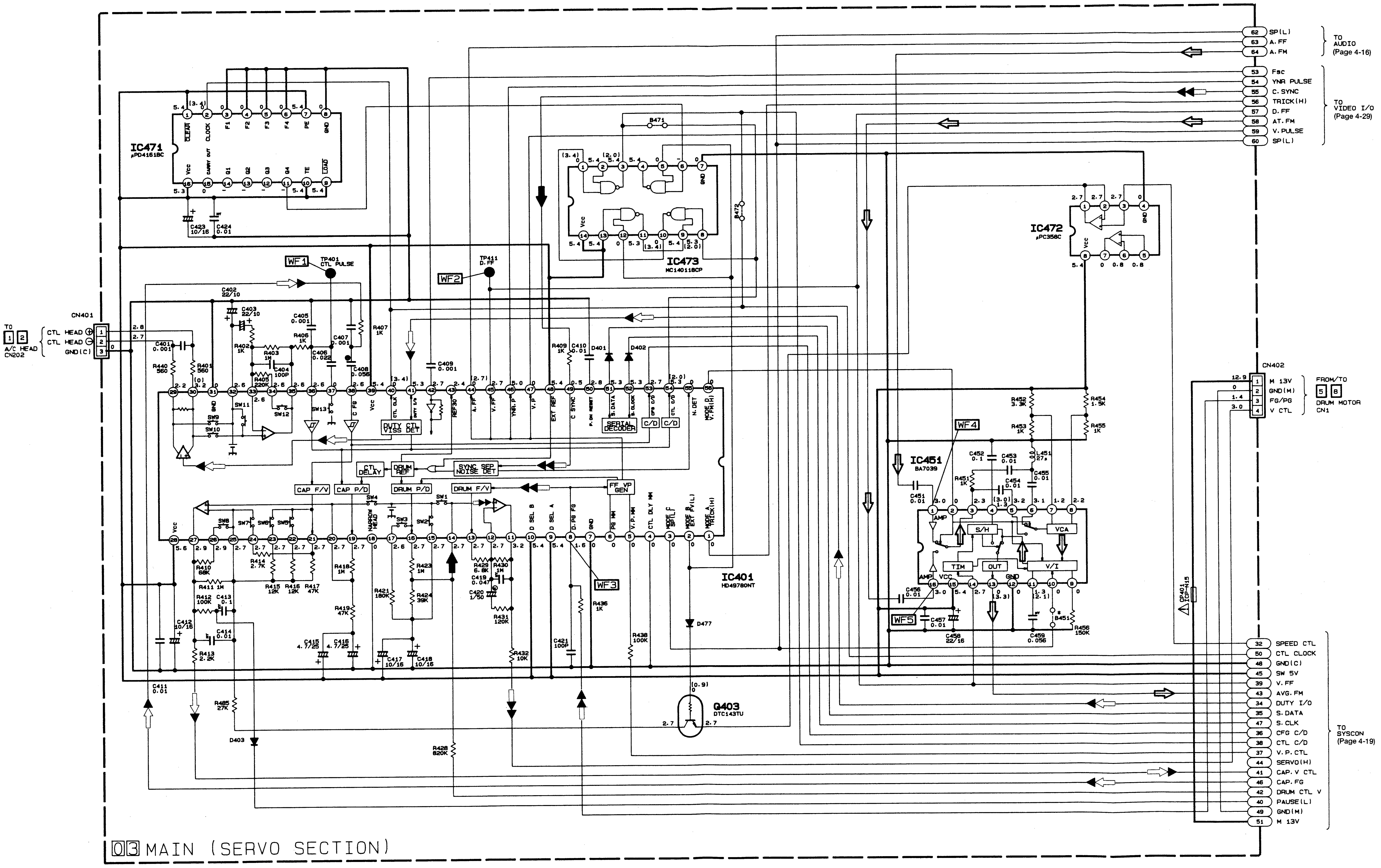
COMPARISON CHART OF
MODELS & MARKS(*)

	IC301	R301-R306	C301-C306	CN301	CN302	CN2
HR-S4900U	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
HR-S6900U	USED	USED	USED	USED	USED	USED



03 MAIN(AUDIO)
07 TUNER/MIC AMP(MIC AMP)
TO SYSCON (Page 4-20) IND(L) IND(R)
TO TUNER CN2 (Page 4-36) RF VIDEO GND RF AUDIO
CN5
WF1
TO VIDEO I/O (Page 4-28) RF VIDEO GND TU VIDEO GND
CN4
TO TUNER CN1 (Page 4-35) TU VIDEO GND TU IN(R) GND TU IN(L)
CN3
TO SW/JACK CN6 (Page 4-48) FRONT IN(L) GND FRONT IN(R)
(R) JA6
AUDIO IN
(L) JA5
(L) JA8
AUDIO OUT
(R) JA7
IC3 BA6136
IC4 XRA15218
IC1 XRA15218N
WF4
WF3
Q6 2SC1740S(RS)
Q5 2SC1740S(RS)
Q7 DTA114EV
TO AUDIO UNIT JP1 (Page 4-39)
TO AUDIO UNIT JP2 (Page 4-40)
JP1
JP2
TO SW/JACK CN7 (Page 4-48)
*CN301 MIC CTL GND MIC IN
*IC301 XRA15218N
*CN302
Q1 2SC3311A
Q2 2SC3311A
D1
D2 MTZ12C
L1 100µ
CTL B
CTL A
COMP(L)
TO VIDEO I/O (Page 4-28)
ND(L)
A.MUTE(L)
A.DATA
A.CLK
H.REC ST(L)
AL 13V
AL 5.8V
TO SYSCON (Page 4-20)
CN1
REC FM(L)
REC FM(R)
H.REC ST(L)
S.CASS(L)
A.FF
A.FM
PB FM
GND
TO REC CN202 (Page 4-60)
Q4 2SC4081(RS)
Q3 2SC4081(RS)
A.FF
A.FM
SP(L)
TO SERVO (Page 4-18)
GND
SW 5V
SW 12V
TO VIDEO I/O (Page 4-29)
S.CASS(L)
REC(L)
REC ST(L)
FE ON(L)
TO SYSCON (Page 4-20)
D101 DAN202U
D102 DAN202U
Q103 DTC114WU
Q102 DTC114WU
Q101 DTC114WU
TO 1 2 A/C HEAD CN201
CN101
R/P
A.E
TP31 BIAS(+)
TP32 BIAS(-)
TP33 ERASE
WF5
T101 PU60320
Q106 2SC1740S(RS)
IC101 LA7295
WF6
WF7
WF2
Q105 DTA114EU
Q104 DTA114EU
D104
D103
TP34 FULL ERASE
FULL ERASE
CN102
T102 PU60321
Q107 2SC1740S(RS)
Q108 DTA144ES
S15968
A
B
C
D
E
F
G
H
1
2
3
4
5
6

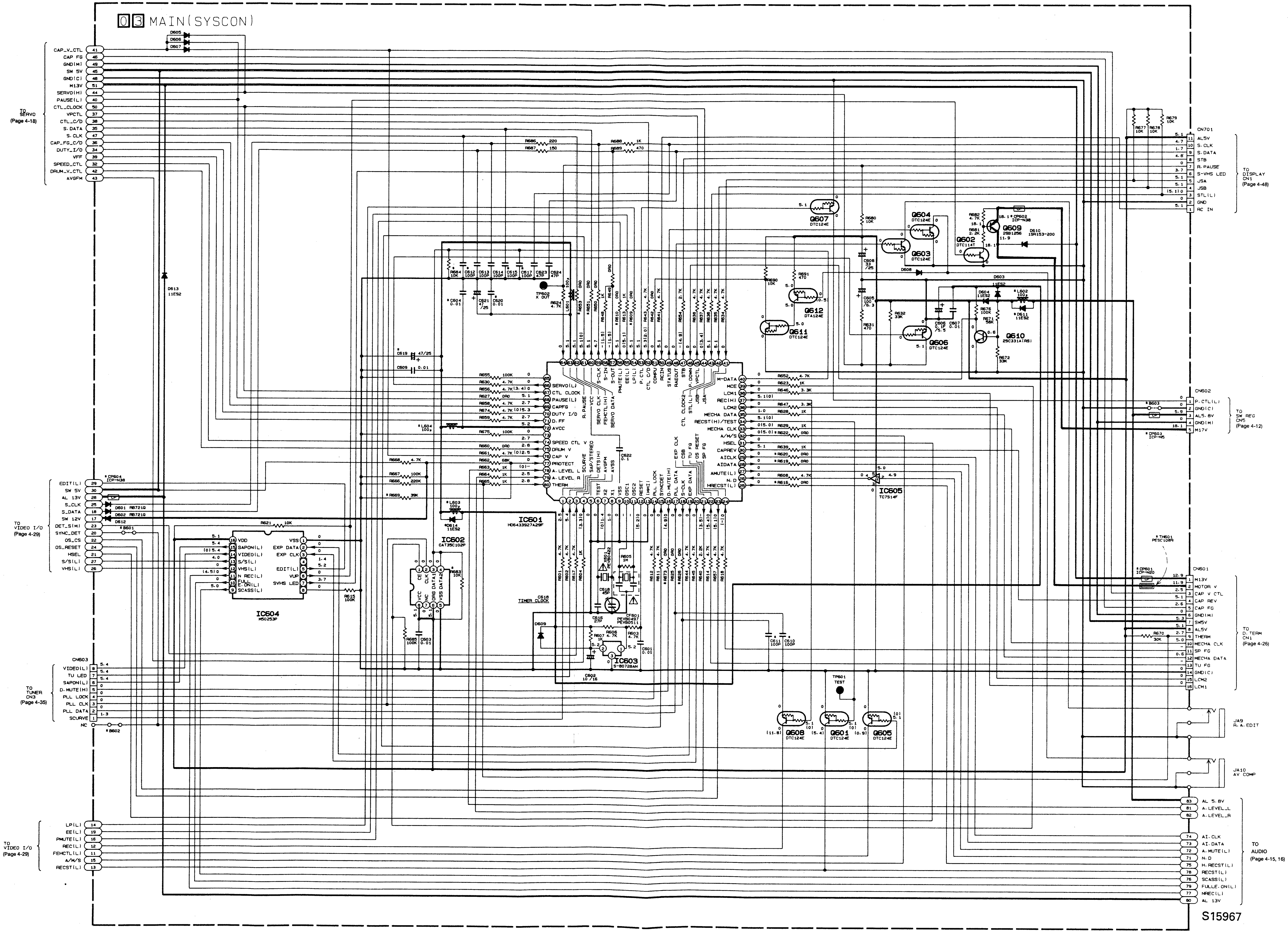
4.8 SERVO SCHEMATIC DIAGRAM



IC471
μPD4161BC
CLEAR
CLOCK
F1
F2
F3
F4
PE
GND
Vcc
CARRY OUT
Q1
Q2
Q3
Q4
TE
LOAD
C423 10/16
C424 0.01
IC473
MC14011BCP
B471
B472
IC472
μPC358C
TP401 CTL PULSE
TP411 D.FF
WF1
WF2
WF3
WF4
WF5
CN401
TO
1 2
A/C HEAD
CN202
CTL HEAD ⊕
CTL HEAD ⊖
GND(C)
C401 0.001
C402 22/10
C403 22/10
C404 100P
C405 0.001
C406 0.022
C407 0.001
C408 0.056
C409 0.001
C410 0.01
R401 560
R402 1K
R403 1M
R405 220K
R406 1K
R407 1K
R409 1K
R440 560
D401
D402
SW9
SW10
SW11
SW12
SW13
DUTY CTL VISS DET
SERIAL DECODER
C/D
CTL DELAY
DRUM REF
SYNC SEP NOISE DET
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
CTL PULSE
C FG
Vcc
CTL CLK
DUTY S/H
REF30
A.FF
V.FF
YNR.P
V.P
EXT REF
C SYNC
P.ON RESET
S.DATA
S.CLOCK
CFG C/D
CTL C/D
N.DET
MODE D V.FM(H)
D SEL B
D SEL A
D.PG FG
GND
PG MM
V.P.MM
CTL DLY MM
MODE C SP(L)
MODE B EXT FV(L)
MODE A TRICK(H)
NARROW HEAD
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
R410 68K
R411 1M
R412 100K
R413 2.2K
R414 2.7K
R415 12K
R416 12K
R417 47K
R418 1M
R419 47K
R421 180K
R423 1M
R424 39K
R428 820K
R429 6.8K
R430 1M
R431 120K
R432 10K
R436 1K
R438 100K
R485 27K
C411 0.01
C412 10/16
C413 0.1
C414 0.01
C415 4.7/25
C416 4.7/25
C417 10/16
C418 10/16
C419 0.047
C420 1/50
C421 100P
D403
D477
IC401
HD49780NT
Q403
DTC143TU
IC451
BA7039
AMP
S/H
VCA
TIM
OUT
V/I
VCC
GND
R451 1K
R452 3.3K
R453 1K
R454 1.5K
R455 1K
R456 150K
L451 27μ
C451 0.01
C452 0.1
C453 0.01
C454 0.01
C455 0.01
C456 0.01
C457 0.01
C458 22/16
C459 0.056
B451
CP401 ICP-N15
62 SP(L)
63 A.FF
64 A.FM
TO AUDIO (Page 4-16)
53 Fsc
54 YNR PULSE
55 C.SYNC
56 TRICK(H)
57 D.FF
58 AT.FM
59 V.PULSE
60 SP(L)
TO VIDEO I/O (Page 4-29)
CN402
1 M 13V
2 GND(M)
3 FG/PG
4 V CTL
FROM/TO
5 6
DRUM MOTOR CN1
32 SPEED CTL
50 CTL CLOCK
48 GND(C)
45 SW 5V
39 V.FF
43 AVG.FM
34 DUTY I/O
35 S.DATA
47 S.CLK
36 CFG C/D
38 CTL C/D
37 V.P.CTL
44 SERVO(H)
41 CAP.V CTL
46 CAP.FG
42 DRUM CTL V
40 PAUSE(L)
49 GND(M)
51 M 13V
TO SYSCON (Page 4-19)
03 MAIN (SERVO SECTION)

S25350

4.9 SYSTEM CONTROL SCHEMATIC DIAGRAM

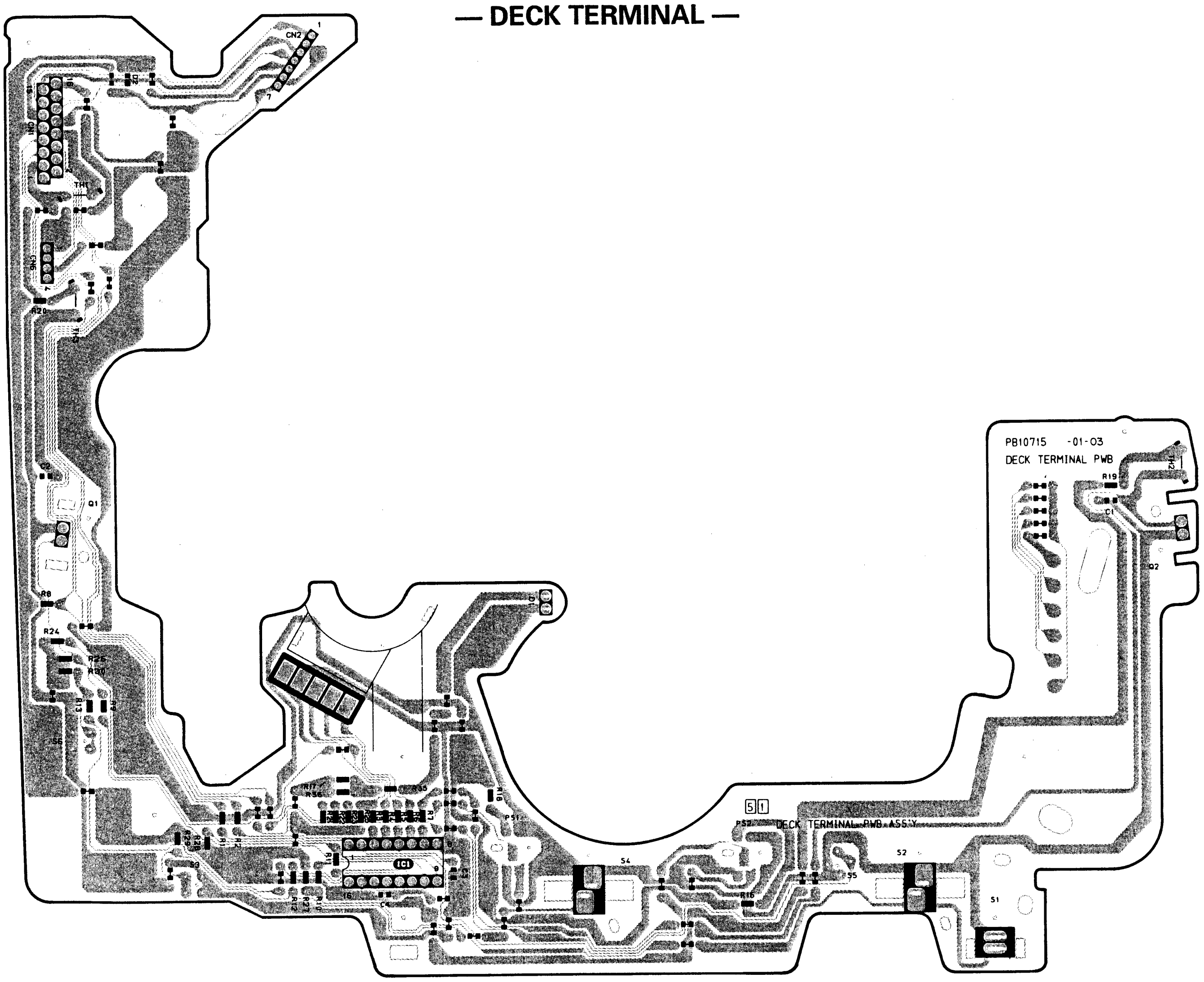

03 MAIN(SYSCON)
TO SERVO (Page 4-18)
CAP_V_CTL 41
CAP FG 46
GND(M) 49
SW 5V 45
GND(C) 48
M13V 51
SERVO(H) 44
PAUSE(L) 40
CTL_CLOCK 50
VPCTL 37
CTL_C/D 38
S.DATA 35
S.CLK 47
CAP_FG_C/D 36
DUTY_I/O 34
VFF 39
SPEED_CTL 32
DRUM_V_CTL 42
AVGFM 43
D605 D606 D607
D613 11ES2
TO VIDEO I/O (Page 4-29)
EDIT(L) 29
SW 5V 30
AL 13V 28
S_CLK 25
S_DATA 18
SW 12V 17
DET_S(M) 23
SYNC_DET 20
OS_CS 22
OS_RESET 24
HSEL 21
S/S(L) 27
VHS(L) 26
*CP604 ICP-N38
D601 RB721Q
D602 RB721Q
D612
*B601
TO TUNER CN3 (Page 4-35)
CN603
VIDEO(L) 8
TU LED 7
SAPON(L) 6
D.MUTE(H) 5
PLL LOCK 4
PLL CLK 3
PLL DATA 2
SCURVE 1
NC
*B602
TO VIDEO I/O (Page 4-29)
LP(L) 14
EE(L) 19
PMUTE(L) 16
REC(L) 12
FEHCTL(L) 11
A/M/S 15
RECST(L) 13
IC604 M50253P
VDD SAPON(L) VIDEO(L) S/S(L) VHS(L) N.REC(L) FULL E.ON(L) SCASS(L)
VSS EXP DATA EXP CLK EDIT(L) VUP SVHS LED
R621 10K
R615 100K
IC602 CAT35C102P
CS CLK DI DO VCC NC ORG VSS
R663 10K
R665 100K
C603 0.01
D614 11ES2
*L603 100µ
IC601 HD6433927A29F
SERVO(L) CTL CLOCK PAUSE(L) CAPFG DUTY I/O D.FF AVCC SPEED CTL V DRUM V CAP V PROTECT A.LEVEL L A.LEVEL R THERM
R-PAUSE SERVO CLK FEHCTL(H) SERVO DATA S-CLK S-IN S-OUT PMUTE(L) EE(L) LP(L) P.CTL CTL C/D COMPU RCIN STATUS RAEDIT STB P.DOWN VPCTL JSA JSB STL(L) CTL CLOCK2
M-DATA MCE LCM1 REC(H) LCM2 MECHA DATA RECST(H)/TEST MECHA CLK A/M/S HSEL CAPREV AICLK AIDATA AMUTE(L) N.D HRECST(L)
SCURVE SAP/STEREO DETS(H) AVGFM AVSS TEST X2 X1 VSS OSC1 OSC2 RESET IRQ1 PLL LOCK SYNCDET D.MUTE(H) PLL DATA S-CLK EXP DATA CSB TU FG OS RESET SP FG EXP CLK
R684 10K C612 100P C613 100P C614 100P C615 100P C617 100P C623 47P C624 47P
TP602 X OUT
L601 100µ
R624 4.7K
C604 0.01
C621 4/25
C620 0.01
C619 47/25
C609 0.01
R686 220 R687 150
R688 1K R689 470
*L604 100µ
R655 100K R630 4.7K R656 4.7K R627 0RO R658 4.7K R674 4.7K R659 4.7K R675 100K R660 0RO R661 4.7K R662 68K R663 1K R664 1K R665 1K
R668 4.7K R667 100K R666 220K R669 39K
C622 0.1
X601 PEY0491
R605 1M
C618 45P
C616 27P
CF601 PEV0049T PEV0051T
TIMER CLOCK
D609
R606 4.7K
R607 1K
R603 4.7K
C601 0.01
C602 10/16
IC603 S-80728AN
C611 100P C610 100P
TP601 TEST
Q608 DTC124E
Q601 DTC124E
Q605 DTC124E
Q607 DTC124E
R680 10K
Q604 DTC124E
Q603 DTC124E
C608 33/25
D608
Q602 DTC114T
R682 4.7K R681 2.2K
Q609 2SB1256
*CP602 ICP-N38
D610 1SR153-200
D603
D604 11ES2
*L602 100µ
*D611 11ES2
R678 100K R671 56K
Q610 2SC331A(RS)
R672 33K
C606 0.1F/5.5 C607 0.01
Q606 DTC124E
R632 33K
C605 100/6.3
R631 470
R690 10K R691 470
Q612 DTA124E
Q611 DTC124E
R652 4.7K R623 1K R646 3.3K R647 3.3K R628 1K R629 1K *R622 0RO R639 1K *R620 0RO *R619 0RO R608 4.7K *R616 0RO
IC605 TC7S14F
R677 10K R678 10K R679 10K
CN701
TO DISPLAY CN1 (Page 4-48)
11 AL5V
10 S.CLK
9 S.DATA
8 STB
7 R.PAUSE
6 S-VHS LED
5 JSA
4 JSB
3 STL(L)
2 GND
1 RC IN
CN602
TO SW REG CN5 (Page 4-12)
1 P.CTL(L)
2 GND(C)
3 AL5.8V
4 GND(M)
5 M17V
*B603
*CP603 ICP-N5
*TH601 PESC1089
*CP601 ICP-N20
CN601
TO D.TERM CN1 (Page 4-26)
1 M13V
2 MOTOR V
3 CAP V CTL
4 CAP REV
5 CAP FG
6 GND(M)
7 SW5V
8 AL5V
9 THERM
10 MECHA CLK
11 SP FG
12 MECHA DATA
13 TU FG
14 GND(C)
15 LCM2
16 LCM1
R670 30K
JA9 R.A.EDIT
JA10 AV COMP
TO AUDIO (Page 4-15, 16)
83 AL 5.8V
81 A.LEVEL_L
82 A.LEVEL_R
74 AI.CLK
73 AI.DATA
72 A.MUTE(L)
71 N.D
75 H.RECST(L)
78 RECST(L)
76 SCASS(L)
79 FULLE.ON(L)
77 NREC(L)
80 AL 13V
S15967
1 2 3 4 5 6
A B C D E F G H

"*" MARKED PARTS

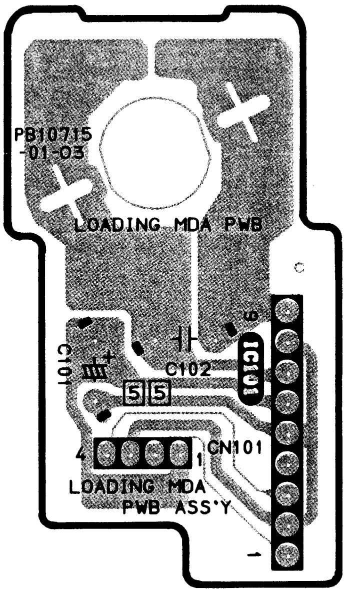
R609	BUS WIRE
R610	BUS WIRE
R616	BUS WIRE
R619	BUS WIRE
R620	BUS WIRE
R622	BUS WIRE
R626	BUS WIRE
R651	BUS WIRE
R653	BUS WIRE
R669	OPEN
R673	BUS WIRE
R683	OPEN
R684	USED
D611	OPEN
D614	OPEN
C604	OPEN
C610	OPEN
C611	OPEN
C612	OPEN
C615	OPEN
C617	OPEN
C619	OPEN
C620	OPEN
L602	BUS WIRE
L603	BUS WIRE
L604	BUS WIRE
CP601	BUS WIRE
CP602	BUS WIRE
CP603	BUS WIRE
CP604	BUS WIRE
TH601	BUS WIRE
B601	USED
B602	OPEN
B603	USED

4.10 DECK TERMINAL, LOADING MDA AND A/C HEAD CIRCUIT BOARDS

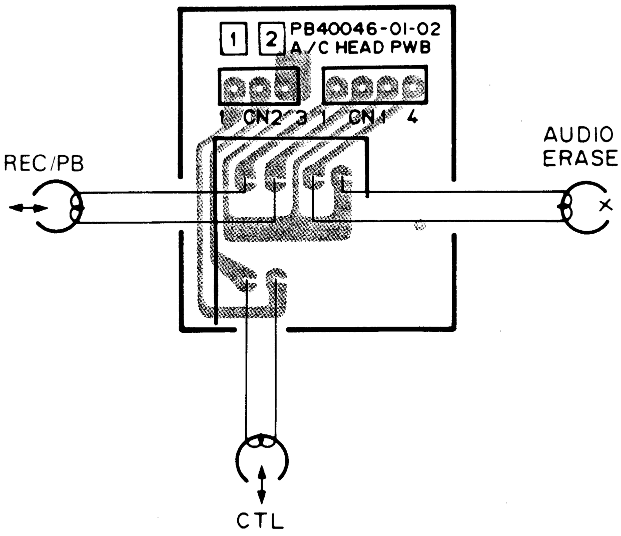
— DECK TERMINAL —


CN2
1
7
CN1
TH1
CN6
R20
Q2
Q1
R8
R24
R25
R30
S6
IC1
R17
R36
R35
R16
PS1
PS2
DECK TERMINAL PWB ASS'Y
S4
S5
S2
S1
R19
C1
TH2
Q2
PB10715 -01-03
DECK TERMINAL PWB
5
1

— LOADING MDA —


PB10715
-01-03
LOADING MDA PWB
C101
C102
IC101
9
5
5
4
1
CN101
LOADING MDA
PWB ASS'Y
1

— A/C HEAD —


1
2
PB40046-01-02
A/C HEAD PWB
1
CN2
3
1
CN1
4
REC/PB
AUDIO
ERASE
CTL

MAIN COMPONENT PARTS LOCATION GUIDE
<MAIN BOARD>

REF. No.	LOCATION
IC	
IC1	8K
IC3	2O
IC4	4N
IC101	6J
IC301	18M
IC302	10I
IC303	18F
IC401	14G
IC451	17C
IC471	12B
IC472	14B
IC473	19A
IC601	6E
IC602	5D
IC603	8F
IC604	4F
IC605	4L

REF. No.	LOCATION
TRANSISTOR	
Q1	9K
Q2	2L
Q3	1M
Q4	1M
Q5	7K
Q6	9K
Q7	4M
Q101	4H
Q102	4H
Q103	7I
Q104	5H
Q105	5H
Q106	4J
Q107	4I
Q108	4I
Q203	11N
Q204	10N
Q205	11M
Q206	13N
Q207	13N
Q208	13N
Q211	12O
Q212	11O
Q203	12N
Q221	10N
Q230	16O
Q232	10M
Q233	20O
Q240	21M
Q241	21M
Q242	21O
Q243	21O
Q244	20O
Q245	20N
Q246	20N
Q248	18D
Q301	17N
Q302	17F
Q303	19K
Q304	19M
Q305	18K
Q306	19K
Q307	20K
Q308	17L
Q309	17O
Q310	16L
Q313	21J
Q314	18G
Q316	19I
Q317	17I
Q318	19I
Q329	17M
Q330	20B
Q403	15C
Q601	4E
Q602	2C
Q603	5D
Q604	6D
Q605	7B
Q606	11C
Q607	1B
Q608	4D
Q609	1C
Q610	3B
Q611	3A
Q612	2A

REF. No.	LOCATION
DIODE	
D2	10K
D101	5I
D102	7I
D103	5H
D104	4H
D204	19O
D210	14L
D211	21M
D215	20N
D217	21O
D218	21N

REF. No.	LOCATION
DIODE	
D219	20M
D220	8O
D221	8O
D301	19O
D303	18C
D305	21E
D306	13L
D313	18F
D314	21G
D316	18C
D401	15F
D402	16G
D403	11F
D477	16D
D601	11K
D602	11K
D603	3C
D604	3C
D605	11D
D606	11E
D607	11E
D608	5C
D609	9F
D610	1H
D612	10I
D613	14I

REF. No.	LOCATION
CONNECTOR	
CN1	2N
CN2	6L
CN3	8M
CN4	9L
CN5	9L
CN101	4K
CN102	3J
CN201	19O
CN205	11O
CN301	19E
CN302	19C
CN303	16J
CN304	21G
CN305	21D
CN306	21L
CN401	12H
CN402	1I
CN601	1F
CN602	1D
CN603	9I
CN701	1A

REF. No.	LOCATION
ADJUSTMENT	
R129	3K
R247	20N
R303	17O
R322	18K
R324	19K
R328	19K
R333	21L
C618	8E

REF. No.	LOCATION
TEST POINT	
TP31	5L
TP32	5K
TP33	3K
TP34	3J
TP301	20E
TP305	21C
TP306	19D
TP310	10O
TP312	18F
TP320	11O
TP324	18L
TP330	10O
TP354	17I
TP355	21L
TP356	21G
TP357	20M
TP401	16I
TP411	18B
TP601	2E
TP602	2A
TPGND1	3L
TPGND2	11N
TPGND3	20N
TPGND4	16I
TPGND5	20F
TPGND6	20A

REF. No.	LOCATION
CP	
CP201	15N
CP401	2H
CP601	2G
CP603	2D
CP605	1G

LEADLESS COMPONENT PARTS LOCATION GUIDE
<MAIN BOARD>

REF. No.	LOCATION
IC	
IC301	18M
IC305	16K
IC306	16K
IC307	12K
IC601	6E
IC605	4L

REF. No.	LOCATION
TRANSISTOR	
Q3	1M
Q4	1M
Q7	4M
Q101	4H
Q102	4H
Q103	7I
Q104	5H
Q105	5H
Q106	4J
Q107	4I
Q203	11N
Q204	10N
Q205	11M
Q206	13N
Q207	13N
Q208	13N
Q211	12O
Q212	11O
Q213	12N
Q230	16O
Q232	10M
Q240	21M
Q241	21M
Q245	20N
Q246	20N
Q301	17N
Q303	19K
Q306	19K
Q307	20K
Q309	17O
Q311	13L
Q317	17I
Q327	17L
Q328	20J
Q329	17M
Q401	14E
Q402	14D
Q403	15C
Q603	5D
Q604	6D
Q607	1B
Q608	4D
Q611	3A
Q612	2A

REF. No.	LOCATION
DIODE	
D101	5I
D102	7I
D211	21M
D219	20M
D305	21E
D452	4G

REF. No.	LOCATION
RESISTOR	
R1	10K
R2	9K
R3	2M
R4	8M
R6	7N
R7	8M
R8	8N
R9	7N
R10	8N
R11	8M
R13	1M
R14	1M
R15	1M
R16	1M
R17	2M
R20	6O
R21	6O
R22	8L
R23	9K
R24	9K
R25	7K
R26	8K
R27	8J
R28	8J
R30	8J
R31	7J
R33	8J
R34	7J
R35	7K
R36	7L
R37	7K
R39	8L
R50	1N
R51	1N
R52	3O

REF. No.	LOCATION
RESISTOR	
R53	3O
R54	2O
R55	2O
R56	3O
R57	2O
R58	2O
R59	2O
R61	4O
R62	5N
R63	5N
R64	4O
R65	4O
R66	4N
R67	4N
R68	2M
R69	3M
R101	5K
R102	5J
R103	5K
R104	5K
R105	5J
R106	6J
R107	6K
R108	7J
R109	7J
R110	7J
R111	6K
R113	6I
R114	6I
R115	6H
R116	6J
R117	7I
R118	7I
R119	6I
R120	6I
R121	7I
R123	4I
R124	5J
R127	5H
R130	4K
R131	4J
R132	4J
R133	5M
R134	4J
R135	4I
R136	4J
R137	4H
R138	4K
R139	4K
R201	10O
R202	11O
R205	9O
R207	8O
R209	19O
R217	11N
R218	13N
R220	10N
R221	13N
R224	12N
R225	11N
R226	19O
R235	10N
R236	9N
R237	21N
R238	20M
R239	21N
R240	21O
R241	21N
R242	20N
R243	21N
R244	20O
R245	21O
R246	20O
R248	20N
R249	18C
R250	15L
R257	21M
R258	21M
R261	11N
R262	13N
R263	12O
R264	10N
R265	20N
R266	20O
R267	18O
R268	18O
R270	7O
R271	9O
R272	20N
R273	20O
R274	20M
R275	20O
R276	20N
R280	10O
R281	11O
R282	10O
R283	10M
R284	11N
R285	13N
R291	20N
R292	20N
R301	17O
R302	18O

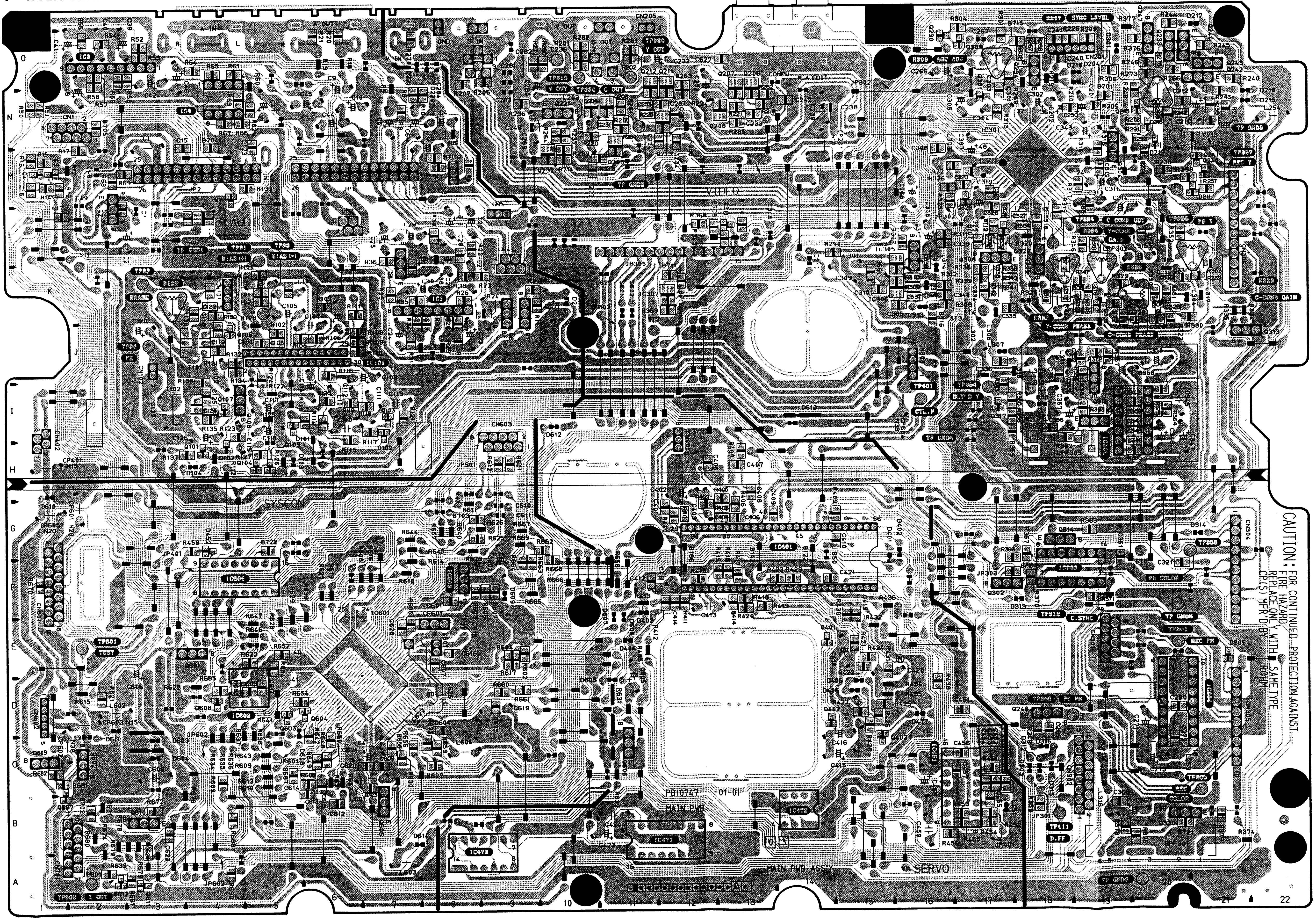
REF. No.	LOCATION
RESISTOR	
R304	17O
R305	19N
R306	19O
R307	16L
R308	16K
R309	16K
R310	16K
R311	16L
R312	16K
R313	17N
R314	18K
R315	19M
R317	19M
R318	20L
R319	18L
R323	19K
R325	16M
R326	16M
R327	18L
R328	20J
R329	19K
R330	21K
R331	20K
R332	21K
R336	17K
R337	17L
R338	18K
R339	17K
R340	18K
R341	18K
R342	18K
R343	17I
R345	13L
R346	19L
R347	19K
R348	19K
R349	19K
R350	20K
R351	19L
R352	20L
R353	21K
R354	18L
R355	18I
R356	19J
R357	19J
R358	18I
R359	18B
R360	18I
R361	19I
R362	18H
R363	19I
R364	20I
R365	20H
R366	17F
R367	18G
R368	12L
R369	12K
R370	18F
R371	19F
R372	19J
R373	20I
R375	20B
R376	20O
R378	19B
R379	21B
R383	19G
R386	19L
R401	12G
R402	12G
R403	13G
R405	13G
R406	13G
R407	13H
R409	15G
R410	12F
R411	12F
R412	12F
R414	13F
R415	13F
R416	13F
R417	13F
R418	13F
R419	13F
R420	13F
R421	15E
R422	15E
R423	14F
R424	15E
R425	15D
R426	15D
R427	15D
R428	15D
R429	13F
R430	15F
R431	15E
R438	16D
R440	12G
R451	17C
R452	17B
R453	17B
R454	17B
R455	17B
R456	16B

REF. No.	LOCATION
RESISTOR	
R459	4G
R601	9H
R602	9E
R603	8F
R604	9E
R605	7E
R606	9F
R607	9F
R612	9H
R617	9E
R621	2D
R623	5E
R625	8G
R627	8C
R630	7C
R633	2A
R642	6C
R648	6C
R649	6C
R650	6C
R652	5E
R654	5D
R655	7C
R656	7C
R659	8C
R660	9D
R661	9D
R662	10G
R663	9F
R664	9F
R668	10F
R670	1F
R672	3B
R674	8C
R675	9D
R681	1C
R682	1C
R683	4D
R684	5E
R685	4D
R686	6C
R687	5C
R688	4B
R689	4C
R690	4A
R691	3A

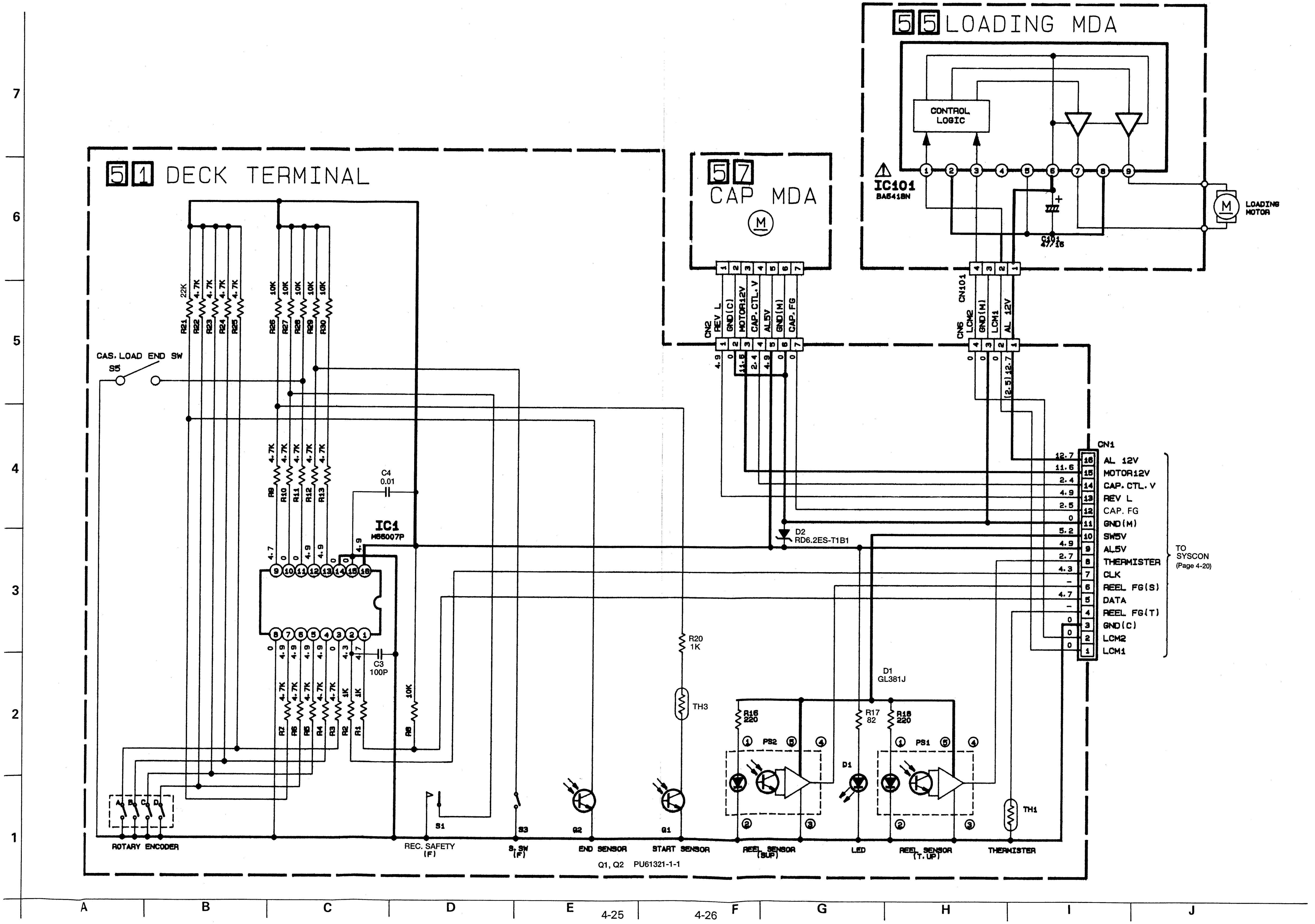
REF. No.	LOCATION
CAPACITOR	
C15	4M
C16	1M
C17	1L
C19	8K
C20	20N
C28	8L
C101	5J
C102	5K
C103	5J
C118	4J
C119	4J
C122	4K
C123	5M
C124	4I
C125	4I
C203	10M
C204	12N
C212	20N
C213	21N
C231	11N
C233	13N
C234	12N
C235	18C
C236	10O
C237	12N
C238	15N
C240	18O
C241	18O
C242	14N
C248	9N
C250	18N
C253	11N
C272	20C
C280	20D
C285	12N
C301	17N
C302	17O
C308	16M
C310	15K
C312	19M
C316	18L
C317	18K
C318	19K
C319	17M
C320	17M
C321	20F
C322	17M
C323	17M
C324	17L
C326	17L
C328	20J
C329	20K

REF. No.	LOCATION
CAPACITOR	
C330	20K
C331	20K
C332	17L
C333	17K
C334	17K
C335	18K
C336	17J
C337	16K
C338	16K
C339	16L
C340	16K
C341	20I
C342	20I
C344	20I
C348	20I
C349	20H
C351	19F
C352	19J
C353	18I
C354	18J
C356	18I
C359	20I
C365	16K
C366	15K
C368	19B
C401	12G
C404	13G
C405	12H
C406	13G
C407	13H
C408	13H
C409	13G
C410	15G
C411	11F
C414	12F
C419	15F
C421	14F
C451	17D
C452	17C
C453	17C
C454	17C
C455	17B
C456	17C
C457	17C
C601	8F
C603	5D
C604	8D
C607	8E
C608	5D
C609	7C
C612	6B
C613	6C
C614	6C
C615	6C
C616	8E
C620	7C
C623	3B
C624	3B
C627	13O
C628	7E

4.11 MAIN CIRCUIT BOARD

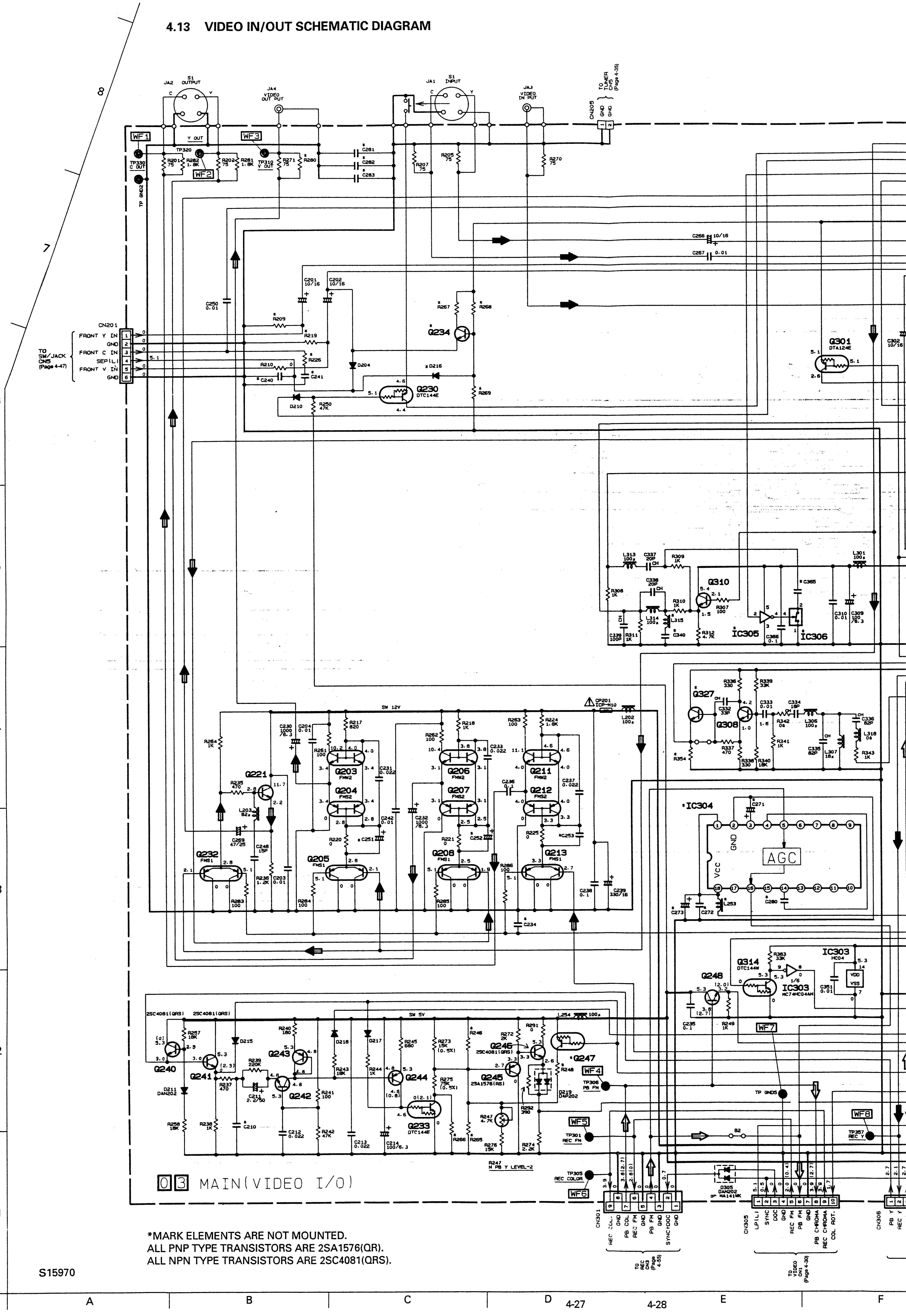

A IN
A OUT
V IN
V OUT
AUDIO
VIDEO
SYSCON
SERVO
PB10747 01-01
MAIN PWB
MAIN PWB ASSY
SYNC LEVEL
AGC ADJ
C-COMP GAIN
C-COMP PHASE
PB COLOR
REC FM
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE CP151 MFR'D BY ROHM
IC101
IC601
IC604
IC301
IC471
IC472
IC473
CN205
CN603
CN304
CN305

4.12 DECK TERMINAL, LOADING MDA AND CAPSTAN MDA SCHEMATIC DIAGRAMS



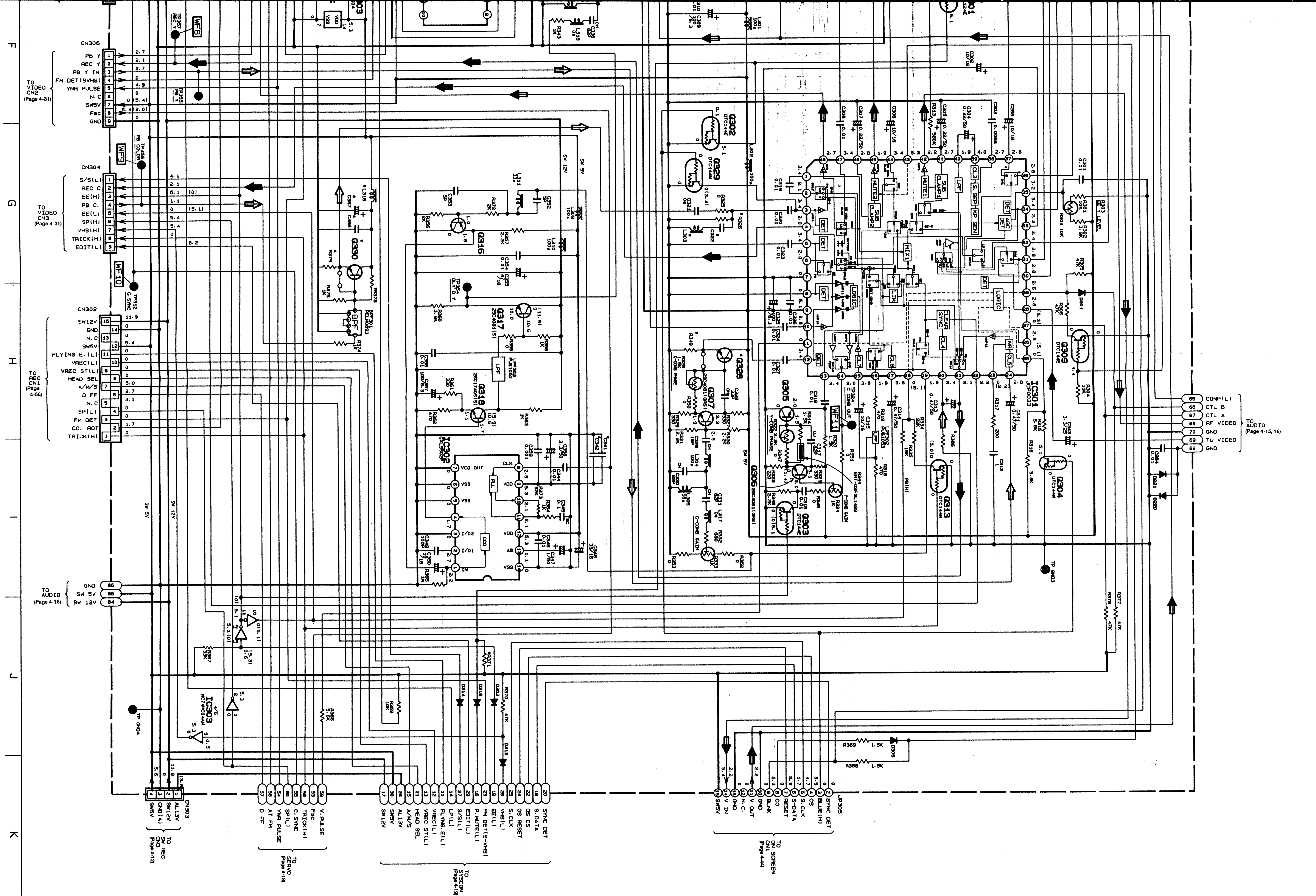
51 DECK TERMINAL
57 CAP MDA
55 LOADING MDA
CONTROL LOGIC
IC101
BA6418N
C101 47/16
LOADING MOTOR
CN101
CN5
LCM2
GND(M)
LCM1
AL 12V
CN2
REV L
GND(C)
MOTOR12V
CAP.CTL.V
AL5V
GND(M)
CAP.FG
CAS. LOAD END SW
S5
R21 22K
R22 4.7K
R23 4.7K
R24 4.7K
R25 4.7K
R26 10K
R27 10K
R28 10K
R29 10K
R30 10K
R9 4.7K
R10 4.7K
R11 4.7K
R12 4.7K
R13 4.7K
C4 0.01
IC1
M66007P
C3 100P
R2 4.7K
R6 4.7K
R5 4.7K
R4 4.7K
R3 4.7K
R2 1K
R1 1K
R8 10K
R20 1K
TH3
D2
RD6.2ES-T1B1
D1
GL381J
R16 220
R17 82
R18 220
PS2
PS1
TH1
CN1
AL 12V
MOTOR12V
CAP. CTL. V
REV L
CAP. FG
GND(M)
SW5V
AL5V
THERMISTER
CLK
REEL FG(S)
DATA
REEL FG(T)
GND(C)
LCM2
LCM1
TO SYSCON (Page 4-20)
S1
S3
Q2
Q1
ROTARY ENCODER
REC. SAFETY (F)
S. SW (F)
END SENSOR
START SENSOR
REEL SENSOR (SUP)
LED
REEL SENSOR (T. UP)
THERMISTER
Q1, Q2 PU61321-1-1
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7

4.13 VIDEO IN/OUT SCHEMATIC DIAGRAM


JA2
S1 OUTPUT
JA4 VIDEO OUT PUT
JA1
S1 INPUT
JA3 VIDEO IN PUT
CN205
GND
GND
TO TUNER CN5 (Page 4-35)
WF1
WF2
WF3
TP330 C OUT
TP320 Y OUT
TP310 V OUT
TP GND2
CN201
FRONT Y IN
GND
FRONT C IN
SEP(L)
FRONT V IN
GND
TO SW/JACK CN5 (Page 4-47)
Q234
Q230 DTC144E
Q301 DTA124E
Q310
IC305
IC306
Q327
Q308
SW 12V
CP201 ICP-N10
Q221
Q203 FMW2
Q204 FMS2
Q206 FMW2
Q207 FMS2
Q211 FMW2
Q212 FMS2
Q232 FMS1
Q205 FMS1
Q208 FMS1
Q213 FMS1
*IC304
VCC
GND
AGC
IC303 HC04
Q314 DTC144W
IC303 MC74HC04AN
Q248
WF7
TP GND5
SW 5V
2SC4081(QRS)
Q240
Q241
Q243
Q242
Q244
Q233 DTC144E
Q245 2SA1576(RS)
Q246 2SC4081(QRS)
*Q247
R247 N PB Y LEVEL-2
WF4
TP306 PB FM
WF5
TP301 REC FM
TP305 REC COLOR
WF6
WF8
TP357 REC Y
D305 DAN202 or MA141WK
03 MAIN(VIDEO I/O)
CN301
REC COL.
GND
PB COL
REC FM
GND
PB FM
GND
SYNC+DOC
GND
TO REC CN3 (Page 4-55)
CN305
LP(L)
SYNC
DOC
GND
REC FM
PB FM
GND
PB CHROMA
REC CHROMA
COL ROT.
TO VIDEO CN1 (Page 4-30)
CN306
PB Y
REC Y
A
B
C
D
E
F
1
2
3
4
5
6
7
8

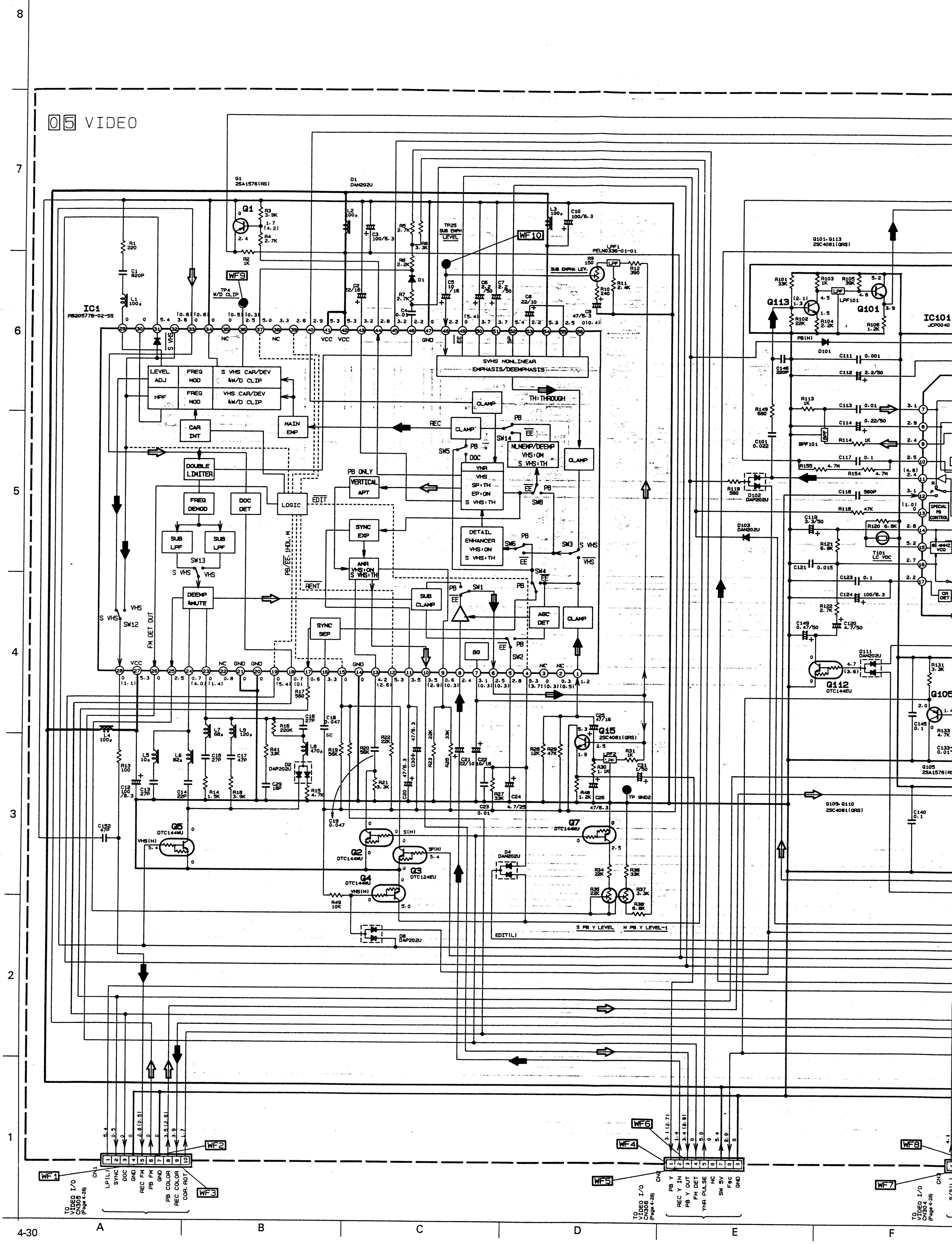
*MARK ELEMENTS ARE NOT MOUNTED.
ALL PNP TYPE TRANSISTORS ARE 2SA1576(QR).
ALL NPN TYPE TRANSISTORS ARE 2SC4081(QRS).

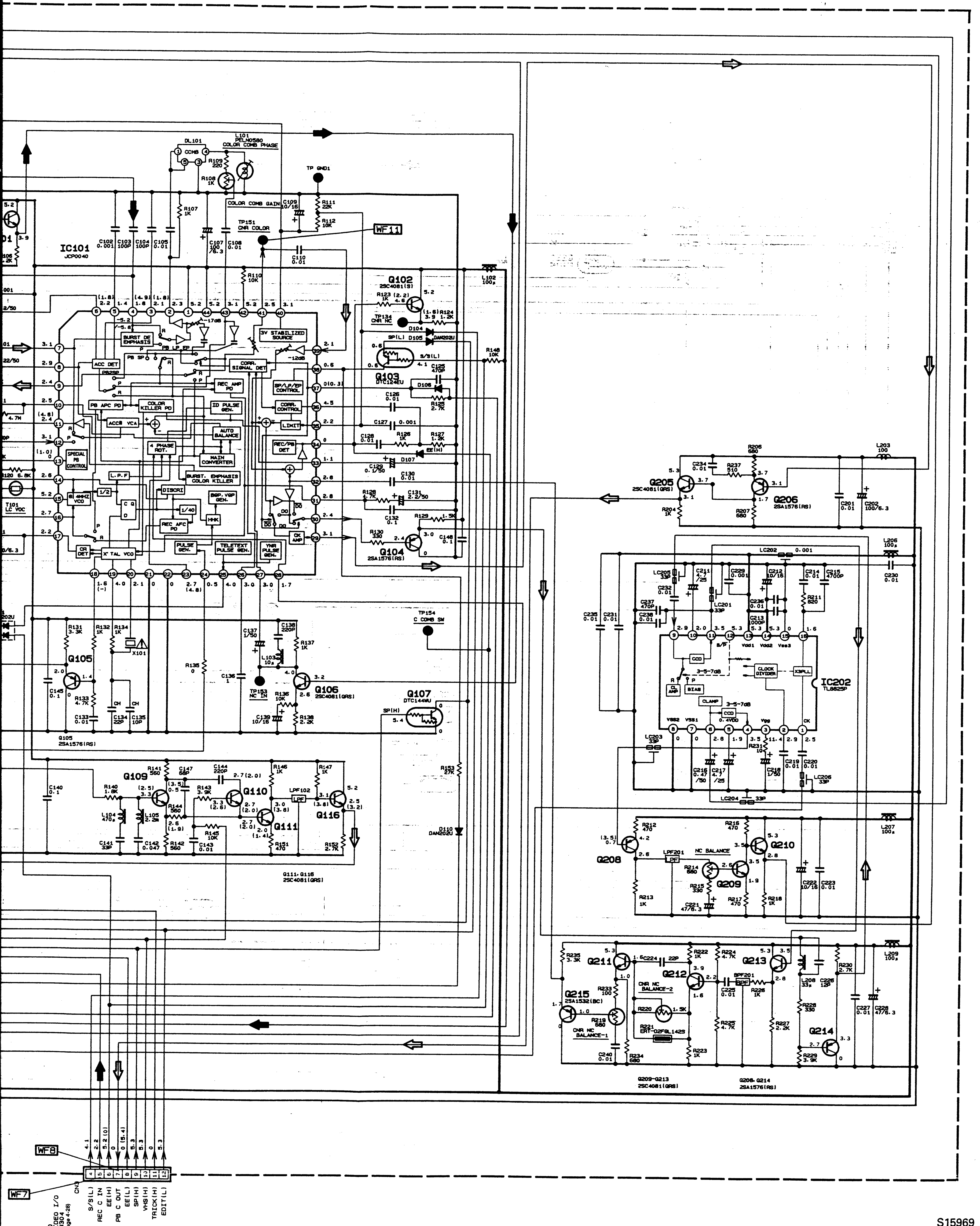
S15970



F
G
H
I
J
K
CN306
PB Y
REC Y
PB Y IN
FM DET(SVHS)
YNR PULSE
N.C
SW5V
Fsc
GND
TO VIDEO CN2 (Page 4-31)
CN304
S/S(L)
REC C
EE(H)
PB C
EE(L)
SP(H)
VHS(H)
TRICK(H)
EDIT(L)
TO VIDEO CN3 (Page 4-31)
CN302
SW12V
GND
N.C
SW5V
FLYING E.(L)
VREC(L)
VREC ST(L)
HEAD SEL
A/H/S
D FF
N.C
SP(L)
FM DET
COL ROT
TRICK(H)
TO REC CN1 (Page 4-56)
TO AUDIO (Page 4-16)
GND
SW 5V
SW 12V
WF8
WF9
WF10
WF11
TP357 REC Y
TP355 PB Y
TP356 PB COLOR
TP312 C.SYNC
TP354 DLY'D Y
TP GND3
TP GND4
Q302 DTC144E
Q329 DTC144M
Q316
Q317 2SC4081(S)
Q318 2SC1740S(S)
Q330
Q328
Q307 2SC4081(QR)
Q308
Q306 2SC4081(QR)
Q303 DTC144E
Q343 DTC144M
Q309 DTC144E
Q304 DTC144M
IC301 JCP0033
IC302 CXL5505P
IC303 MC74HC04AN
BPF301 PELN0853
LPF303 PUS1052
VCO OUT
VSS
VDD
CLK
PLL
CCD
I/02
I/01
AB
IN
DET
LOGIC
LIM
CLEAR SYNC
CL4
CL5
CL6
CL7
NR
MIX1
MUTE1
MUTE2
SUB CLAMP1
SUB CLAMP2
LPF
CL3
S.SEP
KP GEN
AGC DET
RF LEVEL
C-COMB PHASE
Y-COMB PHASE
C-COMB GAIN
Y-COMB GAIN
SW 5V
SW 12V
TO AUDIO (Page 4-15, 16)
65 COMP(L)
66 CTL B
67 CTL A
68 RF VIDEO
70 GND
69 TU VIDEO
62 GND
CN303
AL13V
SW12V
GND(A)
SW5V
TO SW REG CN3 (Page 4-12)
V.PULSE
Fsc
TRICK(H)
C.SYNC
SP(L)
YNR PULSE
AT FM
D FF
TO SERVO (Page 4-18)
SYNC DET
S.DATA
OS CS
OS RESET
S.CLK
VHS(L)
EE(L)
FM DET(S-VHS)
P.MUTE(L)
EDIT(L)
S/S(L)
LP(L)
FLYNG.E(L)
VREC(L)
VREC ST(L)
HEAD SEL
A/H/S
AL13V
SW5V
SW12V
TO SYSCON (Page 4-19)
JP305
SYNC DET
BLUE(H)
CS
S.CLK
S.DATA
RESET
CO
BLNK
GND
V OUT
N.C.
GND
V IN
SW5V
TO ON SCREEN CN1 (Page 4-44)
R369 1.5K
R368 1.5K
D306
D313
D314
D316
D303
D301
D320
D321

4.14 VIDEO SCHEMATIC DIAGRAM

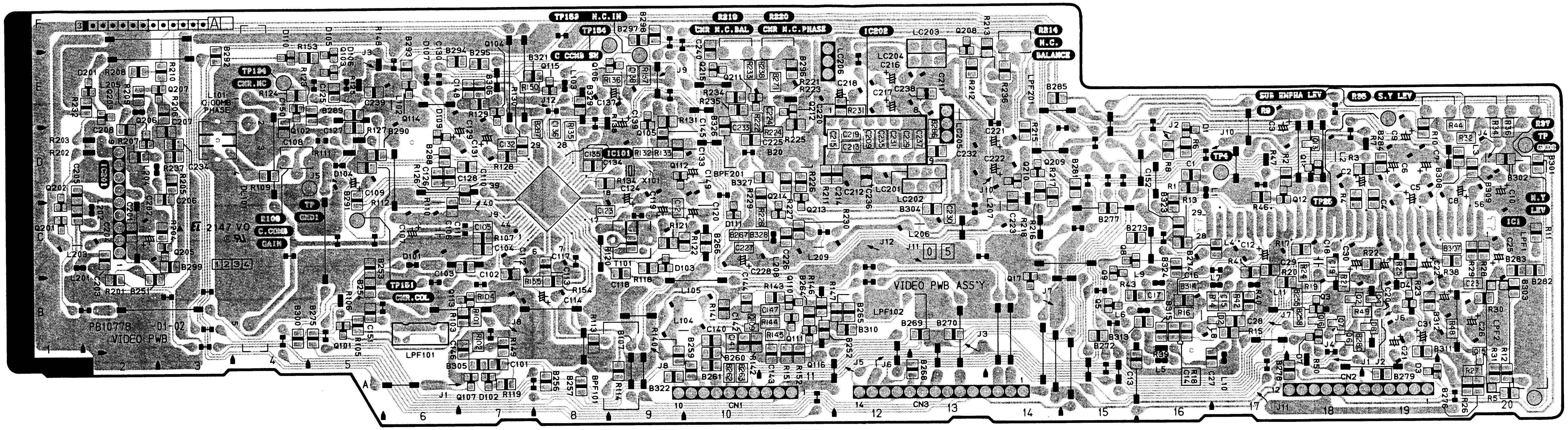

05 VIDEO
IC1
PB20577B-02-SS
Q1
2SA1576(RS)
D1
DAN202U
TP25 SUB EMPH LEVEL
WF9
WF10
TP4 W/D CLIP
LPF1 PELN0336-01-01
SUB EMPHA LEV.
LEVEL ADJ
HPF
FREQ MOD
S VHS CAR/DEV &W/D CLIP
VHS CAR/DEV &W/D CLIP
CAR INT
MAIN EMP
DOUBLE LIMITER
FREQ DEMOD
DOC DET
LOGIC
SUB LPF
SW13
DEEMP &MUTE
SW12
FM DET OUT
PB/EE, 1HDL, M
SVHS NONLINEAR EMPHASIS/DEEMPHASIS
TH:THROUGH
CLAMP
REC
SW5
SW14
NLNEMP/DEEMP VHS:OM S VHS:TH
YNR VHS SP:TH EP:ON S VHS:TH
DOC
PB ONLY VERTICAL APT
EDIT
SYNC EXP
ANR VHS:ON S VHS:TH
RENT
DETAIL ENHANCER VHS:ON S VHS:TH
SW6
SW8
SW3
SW4
SUB CLAMP
SW1
BG
AGC DET
SW2
SYNC SEP
Q5 DTC144WU
Q2 DTC144WU
Q3 DTC124EU
Q4 DTC144WU
Q7 DTC144WU
Q15 2SC4081(QRS)
D2 DAP202U
D4 DAN202U
D8 DAP202U
TP GND2
S PB Y LEVEL
N PB Y LEVEL-1
EDIT(L)
Q101-Q113 2SC4081(QRS)
Q113
Q101
LPF101
IC101 JCP0040
D101
BPF101
D102 DAP202U
D103 DAN202U
T101 LC VOC
SPECIAL PB CONTROL
CR DET
Q112 DTC144EU
D111 DAN202U
Q105 2SA1576(RS)
Q109-Q110 2SC4081(QRS)
TO VIDEO I/O CN305 (Page 4-28)
CN1
LP(L)
SYNC
DOC
GND
REC FM
PB FM
GND
PB COLOR
REC COLOR
COR. ROT
WF1
WF2
WF3
TO VIDEO I/O CN306 (Page 4-28)
CN2
PB Y
REC Y IN
PB Y OUT
FM DET
YNR PULSE
NC
SW 5V
Fsc
GND
WF4
WF5
WF6
TO VIDEO I/O CN304 (Page 4-28)
CN3
WF7
WF8
1
2
3
4
5
6
7
8
A
B
C
D
E
F


TO VIDEO I/O CN304 (Page 4-28)
CN3
S/S(L)
REC C IN
EE(H)
PB C OUT
EE(L)
SP(H)
VHS(H)
TRICK(H)
EDIT(L)
WF7
WF8
WF11
IC101
JCP0040
IC202
TL8825P
DL101
CCMB
L101
PELN0580
COLOR COMB PHASE
COLOR COMB GAIN
TP GND1
TP151
CNR COLOR
TP134
CNR NC
TP153
NC IN
TP154
C COMB SW
Q102
2SC4081(S)
Q103
DTC124EU
Q104
2SA1576(RS)
Q105
2SA1576(RS)
Q106
2SC4081(QRS)
Q107
DTC144WU
Q109
Q110
Q111
Q116
Q111-Q116
2SC4081(QRS)
Q205
2SC4081(QRS)
Q206
2SA1576(RS)
Q208
Q209
Q210
Q211
Q212
Q213
Q214
Q215
2SA1532(BC)
Q209-Q213
2SC4081(QRS)
Q208, Q214
2SA1576(RS)
NC BALANCE
CNR NC BALANCE-1
CNR NC BALANCE-2
R221
ERT-D2FGL142S
BPF201
LPF201
LPF102
X101
T101
LC VOC
D104
D105
DAN202U
D106
D107
D110
DAN202U
EE(H)
SP(L)
S/S(L)
BURST DE EMPHASIS
PB LP EP
PB SP
ACC DET
PB29P
REC AMP PD
ID PULSE GEN.
PB APC PD
COLOR KILLER PD
ACC VCA
AUTO BALANCE
4 PHASE ROT.
MAIN CONVERTER
SPECIAL PB CONTROL
L.P.F
BURST. EMPHASIS COLOR KILLER
4MHZ VCO
1/2
DISCRI
BGP, VGP GEN.
1/40
REC AFC PD
HHK
CR DET
X' TAL VCO
PULSE GEN.
TELETEXT PULSE GEN.
YNR PULSE GEN.
3V STABILIZED SOURCE
CORR. SIGNAL DET
SP/LP/EP CONTROL
CORR. CONTROL
LIMIT
REC/PB DET
CK AMP
DO
-17dB
-12dB
CCD
3-5-7dB
CLOCK DIVIDER
X3PLL
CL AMP
BIAS
CLAMP
Vdd1
Vdd2
Vss3
VSS2
VSS1
Vgg
CK
B/F

F
G
4-31
H
4-32
I
J
K

S15969

4.15 VIDEO CIRCUIT BOARD



MAIN COMPONENT PARTS LOCATION GUIDE
<VIDEO BOARD>

REF. No.	LOCATION
IC	
IC1	20C
IC101	8D
IC201	2D
IC202	12D
TRANSISTOR	
Q1	18D
Q2	18B
Q3	18B
Q3	18B
Q4	19B
Q5	15B
Q7	18B
Q8	15C
Q12	17C
Q13	18D
Q15	20A
Q16	18B
Q17	14C
Q101	5B
Q102	4E
Q103	5E
Q104	7E
Q105	9D
Q106	9E
Q107	7A
Q109	10B
Q110	11B
Q111	11B
Q112	9D
Q113	7B
Q114	6E
Q115	8E
Q116	11B
Q201	1C
Q202	1D
Q203	2E
Q205	3C
Q206	2D
Q207	3E
Q208	13E
Q209	14D
Q210	14D
Q211	10E
Q212	11E
Q213	11C
Q214	11C
Q215	10E
DIODE	
D1	16D
D2	17B
D3	19A
D4	19B
D7	18B
D8	19B
D101	6C
D102	7A
D103	9C
D104	5D
D105	5E
D106	5E
D107	6E
D109	6D
D111	10C
D201	2E
CONNECTIOR	
CN1	10A
CN2	18A
CN3	13A
ADJUSTMENT	
R9	18E
R35	19E
R37	20D
R108	4D
R214	14F
R219	10E
R220	11E
L101	3D
T101	9C
TP	
TP4	17D
TP25	19D
TP134	4E
TP151	5C
TP153	9E
TP154	9E
TPGND1	5D
TPGND2	20

LEADLESS COMPONENT PARTS LOCATION GUIDE
<VIDEO BOARD>

REF. No.	LOCATION
IC	
IC101	8D

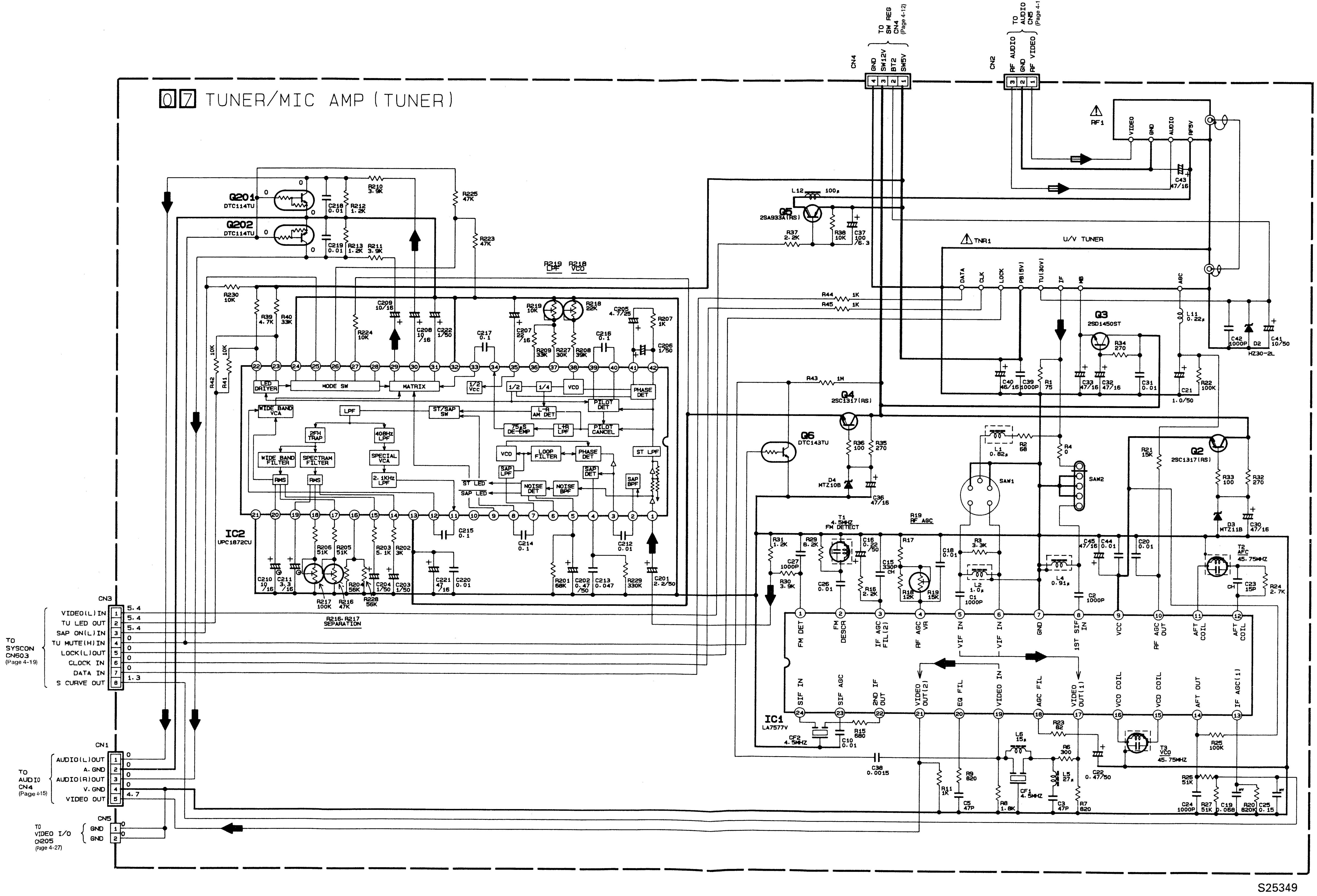
REF. No.	LOCATION
TRANSISTOR	
Q1	18D
Q2	18B
Q3	18B
Q4	19B
Q5	15B
Q6	18B
Q7	18B
Q8	15C
Q9	15C
Q12	17C
Q13	18D
Q15	20A
Q16	19B
Q17	14C
Q101	5B
Q102	4E
Q103	5E
Q104	7E
Q105	9D
Q106	9E
Q107	7A
Q109	10B
Q110	11B
Q111	11B
Q112	9D
Q113	7B
Q114	6E
Q115	8E
Q116	11B
Q201	1C
Q202	1D
Q203	2E
Q205	3C
Q206	2D
Q207	3E
Q208	13E
Q209	14D
Q210	14D
Q211	10E
Q212	11E
Q213	11C
Q214	11C
Q215	10E

REF. No.	LOCATION
DIODE	
D1	16D
D2	17B
D3	19A
D4	19B
D7	18B
D8	19B
D102	7A
D103	9C
D105	5E
D109	6D
D110	4E
D111	10C
D201	2E

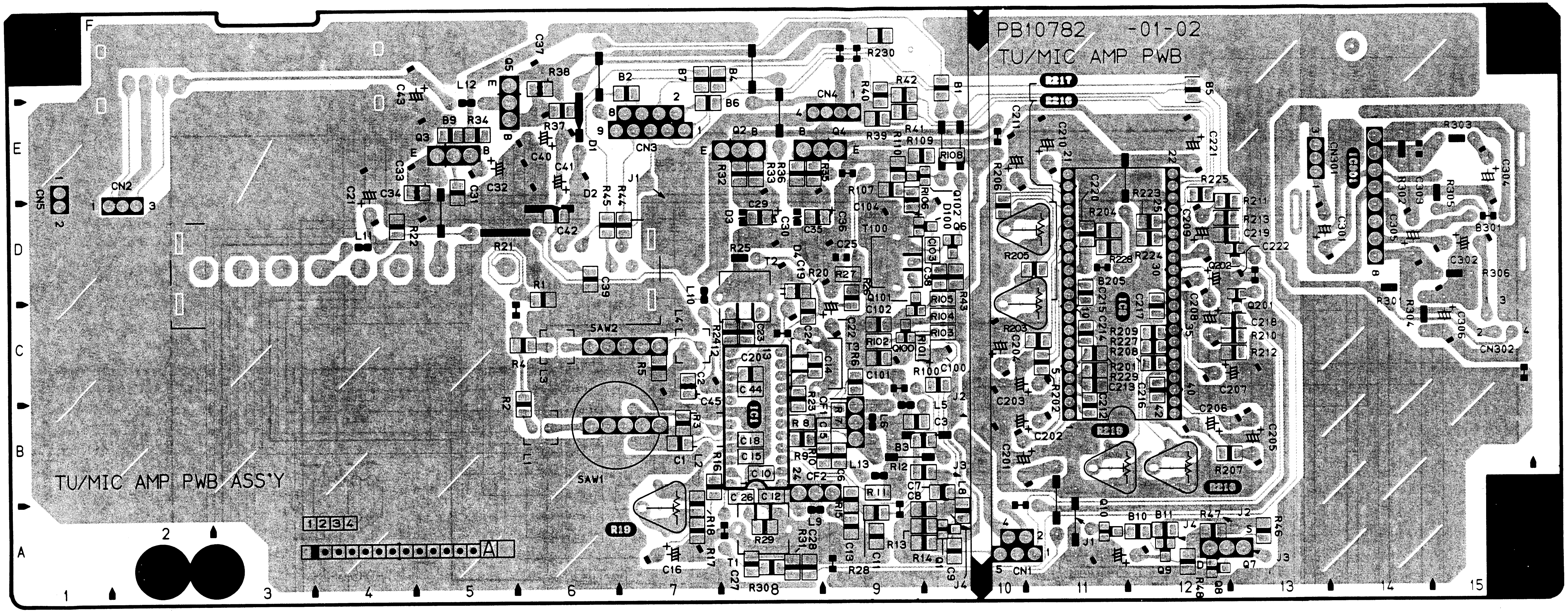
REF. No.	LOCATION
RESISTOR	
R1	16D
R2	18D
R3	18D
R4	18C
R5	20A
R6	16D
R8	16D
R10	19D
R11	20C
R12	20A
R13	16C
R14	17B
R15	17B
R16	16B
R17	18C
R18	16B
R19	18B
R20	18B
R21	18B
R22	19C
R23	19C
R24	18C
R25	18C
R26	20A
R27	20A
R28	20C
R29	20C
R30	20B
R31	20A
R32	20D
R34	20D
R36	20D
R38	20C
R40	17B
R41	17C
R42	17B
R43	15B
R44	20D
R46	17C
R48	20B
R49	19B
R101	7B
R102	7B
R103	7B
R104	7B
R105	5B
R107	7C
R109	4D
R110	6C
R112	5D
R113	8B
R114	9A
R118	9C
R119	7A
R120	9C
R121	9C
R122	10C
R123	5E
R124	4E
R126	6D
R128	7D
R129	7E
R130	7D
R131	9D
R132	9D
R133	9D
R134	8D
R135	8D
R136	9E
R137	9E
R140	9A
R141	10B
R142	10B
R143	11B
R144	11B
R145	11B
R146	11B
R147	12B
R149	7B
R150	7E
R151	11A
R152	11A
R153	5E
R154	8B
R155	8B
R201	2B
R204	3C
R205	3D
R206	3E
R207	2D
R208	2E
R209	2E
R210	3E
R211	11C
R212	13E
R213	14E
R215	14D
R216	14D
R217	14C
R222	10D
R224	11D
R225	11D
R226	11D
R227	11D
R228	11C
R229	11C
R230	11C
R231	12E
R232	2E
R233	10E
R234	10E
R235	10E
R236	14E
R237	3D
R238	11E

REF. No.	LOCATION
CAPACITOR	
C1	16D
C4	19C
C13	15A
C14	16B
C15	16B
C16	16B
C17	16B
C19	18C
C23	20B
C27	17A
C28	17B
C29	17C
C101	7A
C102	7C
C103	7C
C104	7C
C105	7C
C110	7D
C113	8C
C118	9C
C121	9C
C123	8C
C125	5E
C126	6D
C127	5D
C128	7D
C132	7D
C133	9D
C134	8D
C135	8D
C136	8D
C138	9E
C140	10B
C141	10B
C142	10B
C143	11A
C144	10B
C145	9D
C146	7B
C147	11B
C148	7E
C150	4D
C151	5B
C152	16C
C201	2C
C203	2C
C204	1C
C205	1D
C206	3D
C207	3D
C208	2D
C209	12D
C213	12D
C214	12D
C215	12D
C219	12D
C220	12E
C223	14C
C224	11E
C225	10D
C226	11C
C227	10C
C229	12D
C230	13C
C231	12D
C232	13D
C233	10D
C234	3D
C235	12D
C236	12D
C237	13D
C238	13E
C239	5E
C240	10E

4.16 TUNER SCHEMATIC DIAGRAM


07 TUNER/MIC AMP (TUNER)
CN4
GND
SW12V
BT2
SW5V
TO SW REG CN4 (Page 4-12)
CN2
RF AUDIO
GND
RF VIDEO
TO AUDIO CN5 (Page 4-15)
RF1
VIDEO
GND
AUDIO
RF5V
C43 47/16
L12 100μ
Q5 2SA933A(RS)
R37 2.2K
R38 10K
C37 100/6.3
TNR1
U/V TUNER
DATA
CLK
LOCK
PB(5V)
TU(30V)
IF
MB
AGC
R44 1K
R45 1K
L11 0.22μ
C42 1000P
D2 HZ30-2L
C41 10/50
Q3 2SD1450ST
R34 270
C40 46/16
C39 1000P
R1 75
C33 47/16
C32 47/16
C31 0.01
C21 1.0/50
R22 100K
R43 1M
Q4 2SC1317(RS)
Q6 DTC143TU
R36 100
R35 270
D4 MTZ10B
C36 47/16
L1 0.82μ
R2 68
R4 0
SAW1
SAW2
R21 15K
Q2 2SC1317(RS)
R33 100
R32 270
D3 MTZ11B
C30 47/16
Q201 DTC114TU
Q202 DTC114TU
C218 0.01
R212 1.2K
R210 3.9K
C219 0.01
R213 1.2K
R211 3.9K
R225 47K
R223 47K
R219 LPF
R218 VCO
R230 10K
R39 4.7K
R40 33K
R224 10K
C209 10/16
C208 10/16
C222 1/50
C217 0.1
R219 10K
R218 22K
C207 22/16
R209 33K
R227 30K
R208 39K
C216 0.1
C205 4.7/25
R207 1K
C206 1/50
R42 10K
R41 10K
LED DRIVER
MODE SW
MATRIX
1/2 VCC
1/2
1/4
VCO
PHASE DET
WIDE BAND VCA
LPF
ST/SAP SW
L-R AM DET
PILOT DET
2FH TRAP
40kHz LPF
75μS DE-EMP
L+R LPF
PILOT CANCEL
WIDE BAND FILTER
SPECTRAM FILTER
SPECIAL VCA
VCO
LOOP FILTER
PHASE DET
ST LPF
RMS
RMS
2.1kHz LPF
SAP LPF
SAP DET
ST LED
SAP LED
NOISE DET
NOISE BPF
SAP BPF
IC2 UPC1872CU
C215 0.1
C214 0.1
C212 0.01
C201 2.2/50
C210 10/16
C211 3.3/16
R206 51K
R205 51K
R203 5.1K
R202 3K
R204 56K
R228 56K
C204 1/50
C203 1/50
C221 47/16
C220 0.01
R201 68K
C202 0.47/50
C213 0.047
R229 330K
R217 100K
R216 47K
R216, R217 SEPARATION
CN3
VIDEO(L)IN 5.4
TU LED OUT 5.4
SAP ON(L)IN 5.4
TU MUTE(H)IN 0
LOCK(L)OUT 0
CLOCK IN 0
DATA IN 0
S CURVE OUT 1.3
TO SYSCON CN503 (Page 4-19)
CN1
AUDIO(L)OUT 0
A. GND 0
AUDIO(R)OUT 0
V. GND 0
VIDEO OUT 4.7
TO AUDIO CN4 (Page 4-15)
CN5
GND 0
GND 0
TO VIDEO I/O CN205 (Page 4-27)
R19 RF AGC
T1 4.5MHZ FM DETECT
R31 1.2K
R29 8.2K
C16 0.22/50
C27 1000P
R30 3.9K
C26 0.01
R16 2.2K
C15 330P CH
R17
R18 12K
R19 15K
C18 0.01
R3 3.3K
L2 1.0μ
C1 1000P
L4 0.91μ
C2 1000P
C45 47/16
C44 0.01
C20 0.01
T2 AFC 45.75MHZ
C23 15P
R24 2.7K
FM DET
FM DESCR
IF AGC FIL(2)
RF AGC VR
VIF IN
VIF IN
GND
1ST SIF IN
VCC
RF AGC OUT
AFT COIL
AFT COIL
SIF IN
SIF AGC
2ND IF OUT
VIDEO OUT(2)
EQ FIL
VIDEO IN
AGC FIL
VIDEO OUT(1)
VCO COIL
VCO COIL
AFT OUT
IF AGC(1)
IC1 LA7577V
CF2 4.5MHZ
C10 0.01
R15 680
C38 0.0015
R11 1K
R9 820
C5 47P
L6 15μ
CF1 4.5MHZ
R8 1.8K
R6 300
L5 27μ
C3 47P
R7 820
R23 82
C22 0.47/50
T3 VCO 45.75MHZ
R25 100K
R26 51K
C24 1000P
R27 51K
C19 0.068
R20 820K
C25 0.15
S25349

4.17 TUNER/MIC AMP CIRCUIT BOARD



MAIN COMPONENT LOCATION GUIDE <TUNER/MIC AMP BOARD>

REF No.	LOCATION
IC	
IC1	8B
IC2	11C
IC301	14E
REF No.	LOCATION
TRANSISTOR	
Q2	8E
Q3	5E
Q4	9E
Q5	5F
Q6	10D
Q201	13D
Q202	13D
REF No.	LOCATION
DIODE	
D2	6D
D3	8D
D4	8D
REF No.	LOCATION
CONNECTOR	
CN1	10A
CN2	2E
CN3	7E
CN4	9E
CN5	1E
CN301	13E
CN302	15C
REF No.	LOCATION
ADJUSTMENT	
R19	7A
R216	11C
R217	11D
R218	12B
R219	11B

LEADLESS COMPONENT PARTS LOCATION GUIDE <TUNER/MIC AMP BOARD>

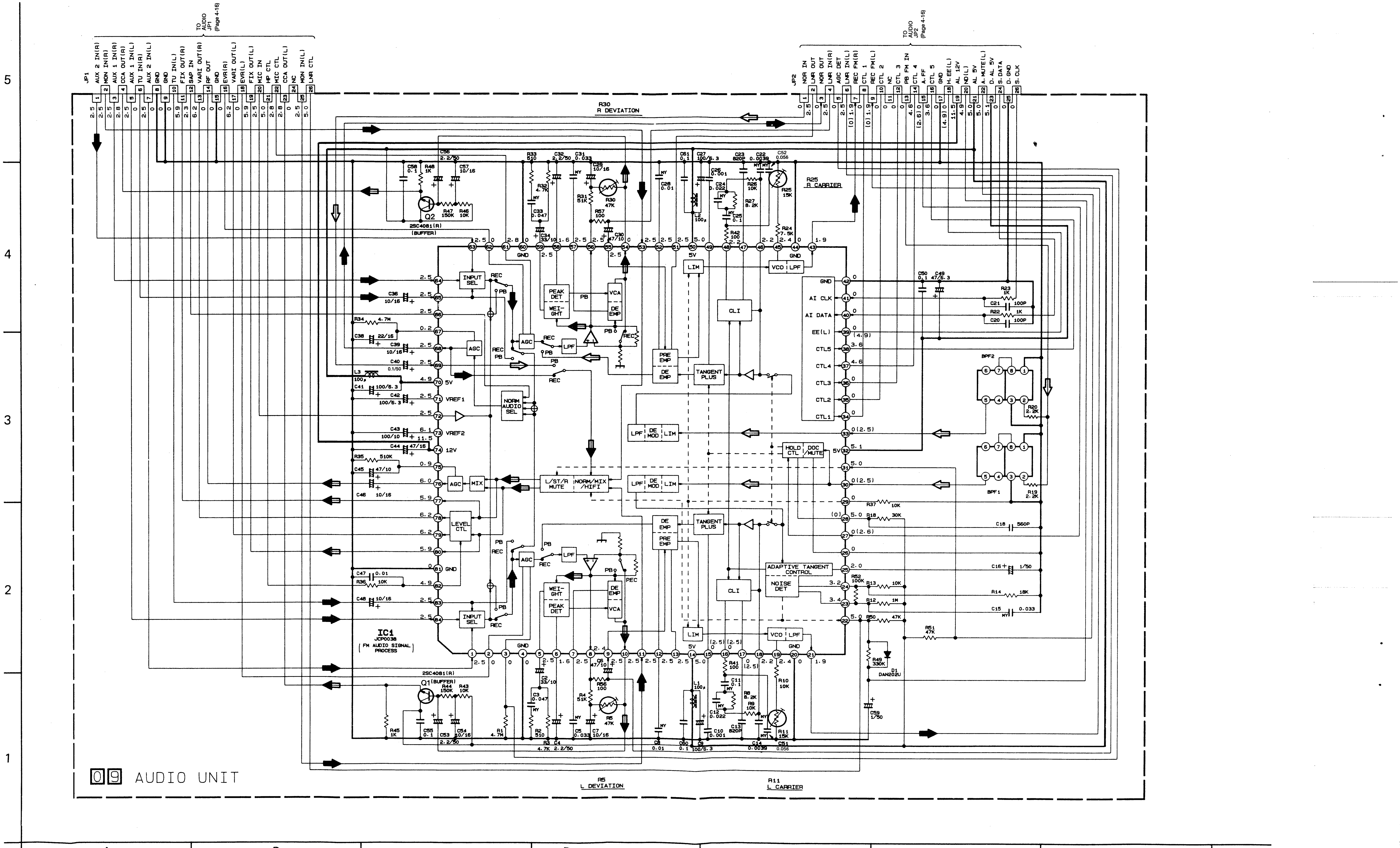
REF No.	LOCATION
TRANSISTOR	
Q1	10A
Q6	10D
Q8	12A
Q9	12A
Q10	11A
Q100	9C
Q101	9D
Q102	10E
Q201	13D
Q202	13D
REF No.	LOCATION
DIODE	
D100	10D
REF No.	LOCATION
RESISTOR	
R1	6D
R2	6C
R3	7B
R4	6C
R5	7C
R6	9C
R7	9B
R8	8B
R9	8B
R10	9B
R11	9B
R12	9B
R13	10A
R14	10A
R15	9B
R16	7B
R17	7A
R18	7B
R20	8D
R22	4D
R23	8C
R24	8C
R26	9D
R27	9D
R28	9A

REF No.	LOCATION
RESISTOR	
R29	8A
R30	8A
R31	8A
R32	8E
R33	8E
R34	5E
R35	8E
R36	8E
R37	9E
R38	9F
R39	9E
R40	9F
R41	9E
R42	9F
R43	10D
R44	7D
R45	6D
R46	13A
R47	12A
R48	12A
R100	10C
R101	9C
R102	9C
R103	10C
R104	10C
R105	10D
R106	9E
R107	9E
R108	10E
R109	9E
R110	9E
R201	11C
R202	11C
R203	11C
R204	11D
R205	11D
R206	10D
R207	12B
R208	12C
R209	12C

REF No.	LOCATION
RESISTOR	
R210	13C
R211	13E
R212	13C
R213	13D
R223	12D
R224	12D
R225	12E
R227	12C
R228	11D
R229	11C
R230	9F

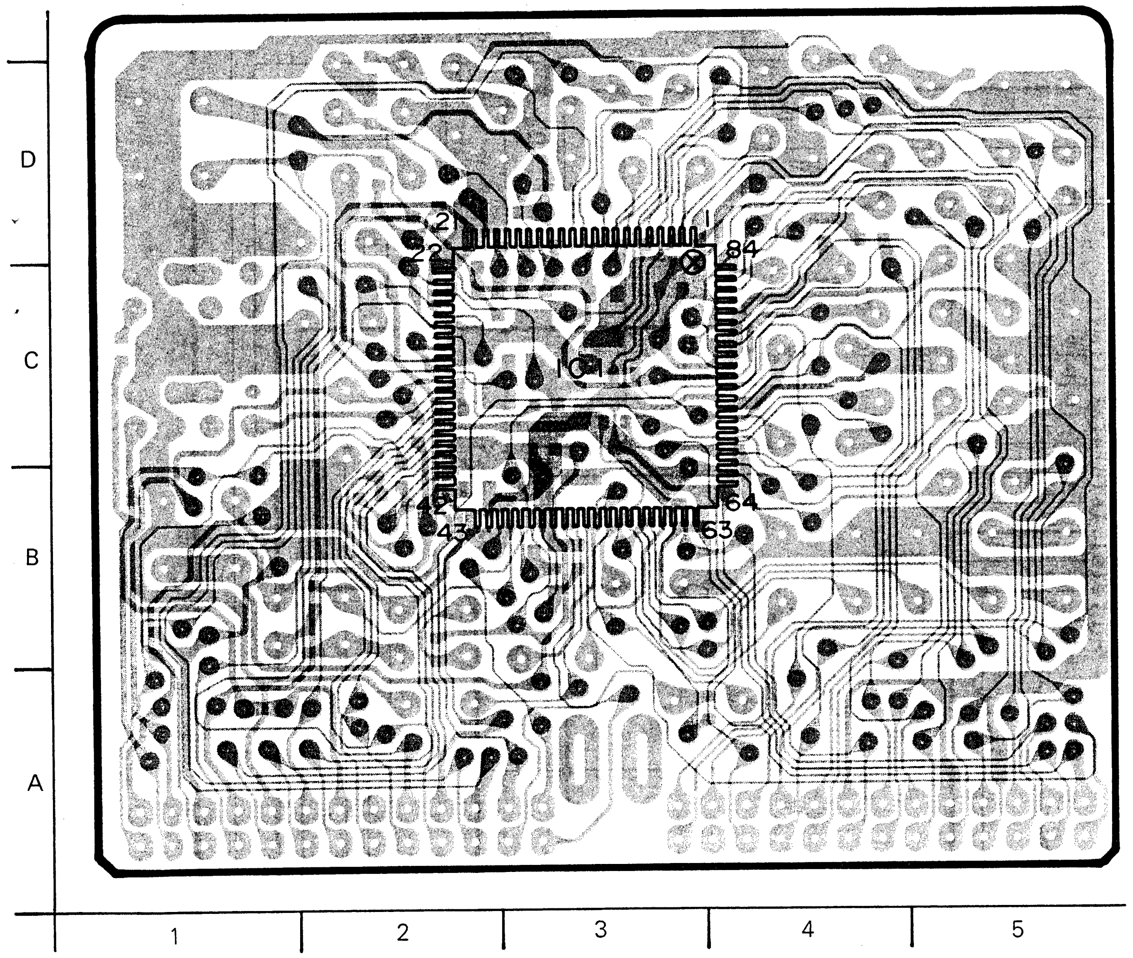
REF No.	LOCATION
CAPACITOR	
C1	7B
C2	7C
C3	9B
C6	9B
C7	10B
C8	10A
C9	10A
C10	8B
C11	9A
C12	8B
C13	9A
C14	8C
C15	8B
C18	8B
C20	8C
C23	8C
C24	8C
C26	8B
C27	8A
C28	8A
C29	8D
C31	5E
C34	5E
C35	8D
C38	10D
C39	6D
C42	6D
C44	8C
C101	9C
C102	9C
C103	10D
C212	11B
C213	11C
C214	11C
C215	11D
C216	12C
C217	12C
C218	13C
C219	13D
C220	11D

4.18 AUDIO UNIT SCHEMATIC DIAGRAM

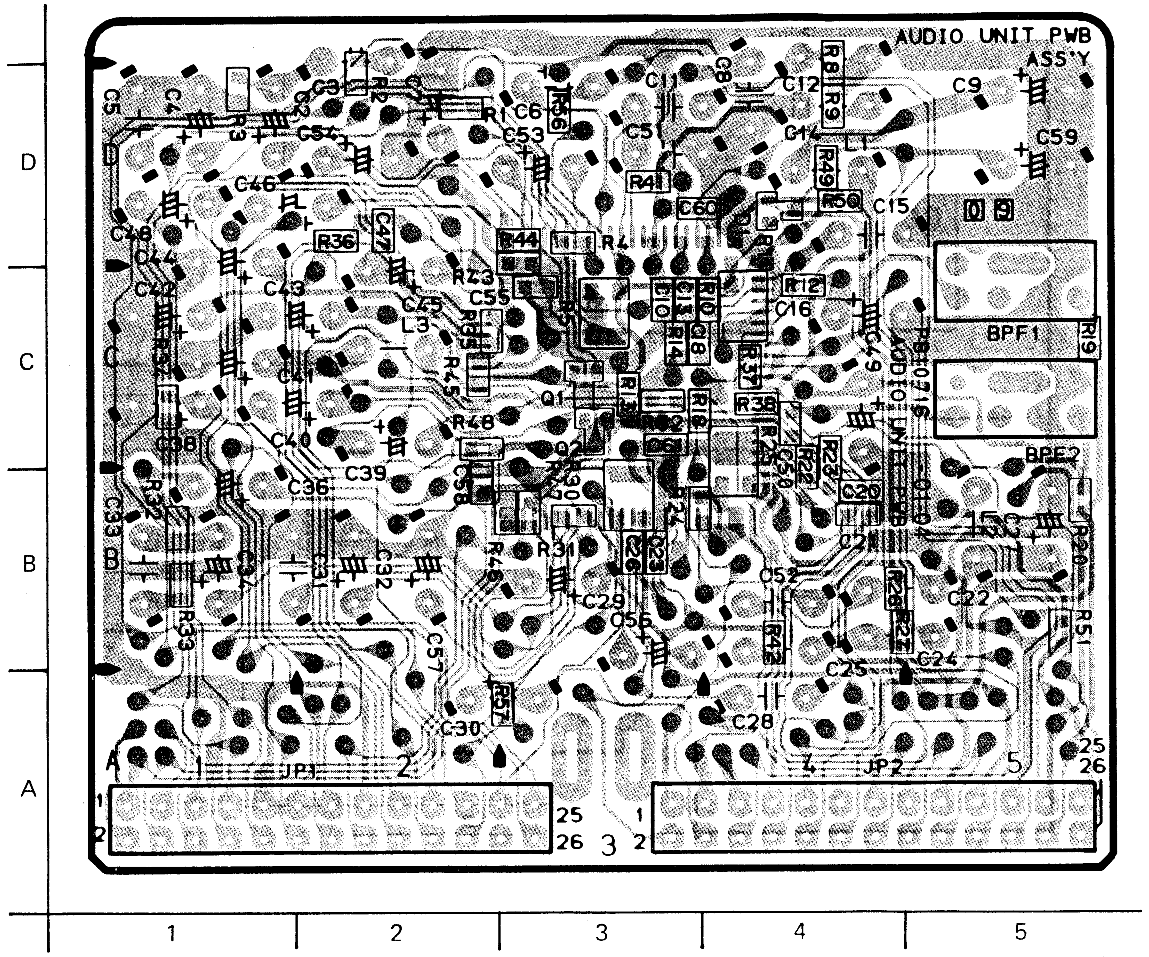

TO AUDIO JP1 (Page 4-16)
JP1
1 AUX 2 IN(R)
2 MON IN(R)
3 AUX 1 IN(R)
4 CCA OUT(R)
5 AUX 1 OUT(R)
6 TU IN(R)
7 AUX 2 IN(L)
8 GND
9 GND
10 TU IN(L)
11 FIX OUT(R)
12 SAP IN
13 VARI OUT(R)
14 RF OUT
15 GND
16 EVR(R)
17 VARI OUT(L)
18 EVR(L)
19 FIX OUT(L)
20 MIC IN
21 HP CTL
22 MIC CTL
23 CCA OUT(L)
24 NC
25 MON IN(L)
26 LNR CTL
TO AUDIO JP2 (Page 4-16)
JP2
1 NOR IN
2 LNR OUT
3 NOR OUT
4 LNR IN(R)
5 AGC DET
6 LNR IN(L)
7 REC FM(R)
8 CTL 1
9 REC FM(L)
10 CTL 2
11 NC
12 CTL 3
13 PB FM IN
14 CTL 4
15 A.FF
16 CTL 5
17 GND
18 H.EE(L)
19 AL 12V
20 ND(L)
21 AL 5V
22 A.MUTE(L)
23 D.AL 5V
24 S.DATA
25 D.GND
26 S.CLK
R30 R DEVIATION
R25 R CARRIER
R5 L DEVIATION
R11 L CARRIER
Q2 2SC4081(R) (BUFFER)
Q1 2SC4081(R) (BUFFER)
IC1 JCP0038 (FM AUDIO SIGNAL PROCESS)
INPUT SEL
AGC
NORM AUDIO SEL
L/ST/R MUTE
NORM/MIX /HIFI
MIX
LEVEL CTL
PEAK DET
WEI-GHT
VCA
DE EMP
PRE EMP
LPF
LIM
CLI
TANGENT PLUS
VCO
DE MOD
HOLD CTL
DOC /MUTE
ADAPTIVE TANGENT CONTROL
NOISE DET
GND
AI CLK
AI DATA
EE(L)
CTL5
CTL4
CTL3
CTL2
CTL1
VREF1
VREF2
5V
12V
REC
PB
BPF1
BPF2
D1 DAN202U
C56 2.2/50
C58 0.1
R48 1K
C57 10/16
R47 150K
R46 10K
R33 510
C32 2.2/50
C31 0.033
C29 10/16
R32 4.7K
R31 51K
R30 47K
R57 100
C33 0.047
C34 33/10
C30 47/10
C61 0.1
C27 100/6.3
C28 0.01
L2 100μ
C26 0.001
C24 0.022
C25 0.1
C23 820P
C22 0.0039
C52 0.056
R26 10K
R27 8.2K
R42 100
R25 15K
R24 7.5K
C50 0.1
C49 47/6.3
R23 1K
C21 100P
R22 1K
C20 100P
C36 10/16
R34 4.7M
C38 22/16
C39 10/16
C40 0.1/50
L3 100μ
C41 100/6.3
C42 100/6.3
C43 100/10
C44 47/16
R35 510K
C45 47/10
C46 10/16
C47 0.01
R36 10K
C48 10/16
R20 2.2K
R19 2.2K
R37 10K
R18 30K
C18 560P
C16 1/50
R52 100K
R13 10K
R14 18K
R12 1M
C15 0.033
R50 47K
R51 47K
R49 330K
C59 1/50
R44 150K
R43 10K
R45 1K
C55 0.1
C53 2.2/50
C54 10/16
R1 4.7M
C2 33/10
C3 0.047
R2 510
R3 4.7K
C4 2.2/50
R4 51K
R56 100
C6 47/10
R5 47K
C5 0.033
C7 10/16
C8 0.01
C60 0.1
C9 100/6.3
L1 100μ
R41 100
C11 0.1
C12 0.022
R8 8.2K
R9 10K
C13 820P
C10 0.001
R10 10K
C14 0.0039
R11 15K
C51 0.056
MY
09 AUDIO UNIT
A
B
C
D
E
F
G
H
1
2
3
4
5

4.19 AUDIO UNIT CIRCUIT BOARD

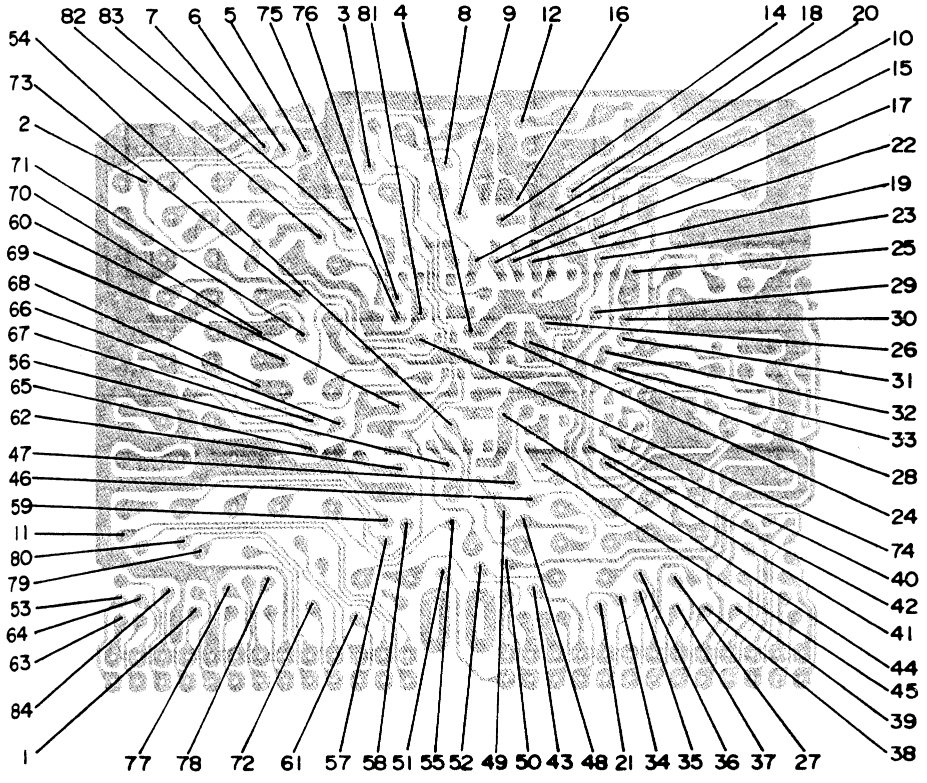
— COMPONENT SIDE —
(A)


D
C
B
A
1
2
3
4
5
IC1
2
22
84
64
63
43

— FOIL SIDE —
(B)


AUDIO UNIT PWB ASS'Y
D
C
B
A
1
2
3
4
5
C5
C4
R3
C3
C54
R2
R1
C6
R56
C53
C11
C8
C51
C12
R8
R9
C14
L1
R49
C9
C59
C46
R41
C60
R50
C15
D9
C48
C44
R36
C47
R44
R4
R12
C16
C42
C43
C45
C55
L3
R35
R43
R45
R10
R14
R13
C49
BPF1
R19
Q1
R18
R37
R38
C41
C40
R48
C61
C58
C39
C36
C38
R47
Q2
R30
R24
C50
R22
R23
C20
BPF2
R32
R33
C33
C31
C32
R46
R31
C26
C23
C29
C56
C57
C52
R26
R27
C21
C22
R20
R51
R57
C30
R42
C25
C24
C28
JP1
JP2
1
2
25
26
3

— IC PIN NUMBER LOCATION (FOIL SIDE) —


82
83
7
6
5
75
76
3
81
4
8
9
12
16
14
18
20
54
73
2
71
70
60
69
68
66
67
56
65
62
47
46
59
11
80
79
53
64
63
84
1
10
15
17
22
19
23
25
29
30
26
31
32
33
28
24
74
40
42
41
44
45
39
38
77
78
72
61
57
58
51
55
52
49
50
43
48
21
34
35
36
37
27

LEADLESS COMPONENT PARTS LOCATION GUIDE
<AUDIO UNIT BOARD>

REF. No.	LOCATION
TRANSISTOR	
Q1	B-3C
Q2	B-3C

REF. No.	LOCATION
DIODE	
D1	B-4D

REF. No.	LOCATION
RESISTOR	
R1	B-2D
R2	B-2D
R3	B-1D
R4	B-3D
R5	B-3C
R8	B-4D
R9	B-4D
R10	B-4C
R11	B-4C
R12	B-4C
R13	B-3C
R14	B-3C
R18	B-3C
R19	B-5C
R20	B-5B

REF. No.	LOCATION
RESISTOR	
R22	B-4B
R23	B-4B
R24	B-3B
R25	B-4C
R26	B-4B
R27	B-4B
R30	B-3B
R31	B-3B
R32	B-1B
R33	B-1B
R34	B-1C
R35	B-2C
R36	B-2D
R37	B-4C
R38	B-4C

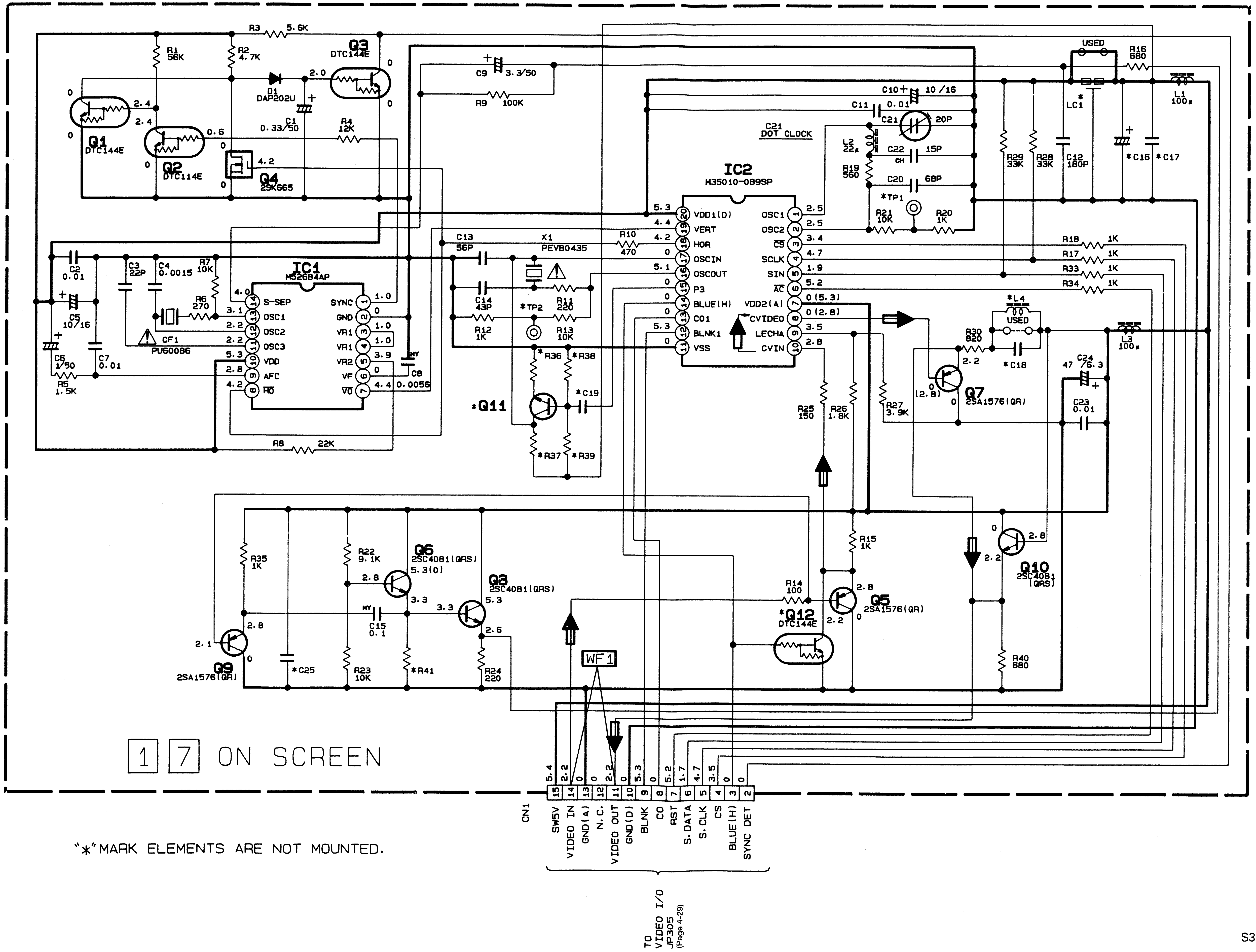
REF. No.	LOCATION
RESISTOR	
R41	B-3D
R42	B-4B
R43	B-2C
R44	B-3D
R45	B-2C
R46	B-3B
R47	B-3B
R48	B-2C
R49	B-4D
R50	B-4D
R51	B-5B
R52	B-3C
R56	B-3D
R57	B-3A

REF. No.	LOCATION
CAPACITOR	
C10	B-3C
C13	B-3C
C18	B-3C
C20	B-4B
C21	B-4B
C23	B-3B
C26	B-3B
C47	B-2D
C50	B-4C
C58	B-2B
C60	B-3D
C61	B-3C

MAIN COMPONENT PARTS LOCATION GUIDE
<AUDIO UNIT BOARD>

REF. No.	LOCATION
IC	
IC1	A-3C
TRANSISTOR	
Q1	B-3C
Q2	B-3C
DIODE	
D1	B-4D
CONNECTOR	
JP1	B-2A
JP2	B-4A
ADJUSTMENT	
R5	B-3C
R11	B-4C
R25	B-3B
R30	B-3B

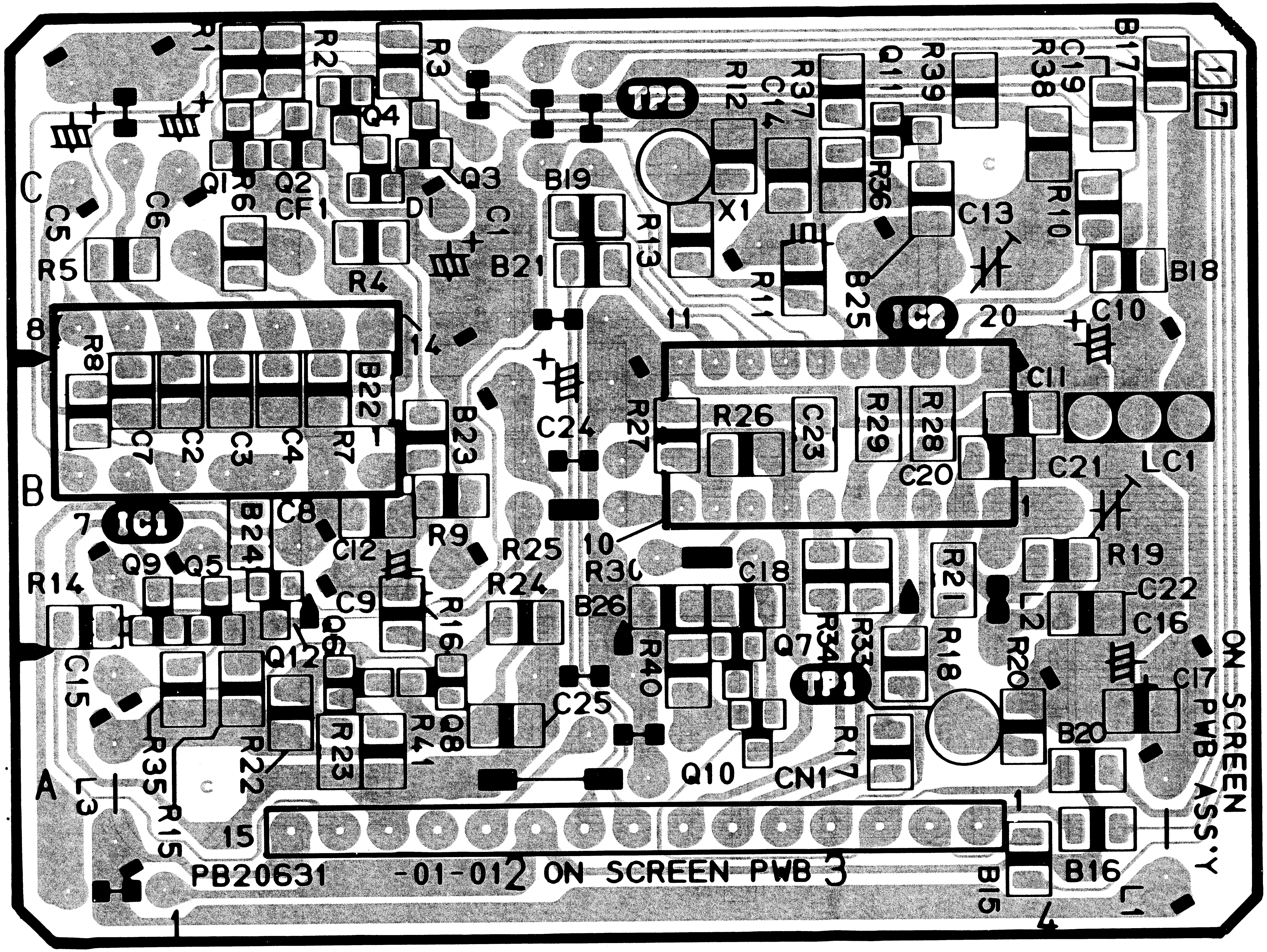
4.20 ON SCREEN SCHEMATIC DIAGRAM


R1 56K
R2 4.7K
R3 5.6K
R4 12K
R5 1.5K
R6 270
R7 10K
R8 22K
R9 100K
R10 470
R11 220
R12 1K
R13 10K
R14 100
R15 1K
R16 680
R17 1K
R18 1K
R19 560
R20 1K
R21 10K
R22 9.1K
R23 10K
R24 220
R25 150
R26 1.8K
R27 3.9K
R28 33K
R29 33K
R30 820
R33 1K
R34 1K
R35 1K
*R36
*R37
*R38
*R39
R40 680
*R41
C1 0.33/50
C2 0.01
C3 22P
C4 0.0015
C5 10/16
C6 1/50
C7 0.01
C8 0.0056
C9 3.3/50
C10 10/16
C11 0.01
C12 180P
C13 56P
C14 43P
C15 0.1
*C16
*C17
*C18
*C19
C20 68P
C21 20P
C21 DOT CLOCK
C22 15P
C23 0.01
C24 47/6.3
*C25
L1 100μ
L2 22μ
L3 100μ
*L4 USED
*LC1
USED
X1 PEVB0435
CF1 PU60086
D1 DAP202U
Q1 DTC144E
Q2 DTC114E
Q3 DTC144E
Q4 2SK665
Q5 2SA1576(QR)
Q6 2SC4081(QRS)
Q7 2SA1576(QR)
Q8 2SC4081(QRS)
Q9 2SA1576(QR)
Q10 2SC4081 (QRS)
*Q11
*Q12 DTC144E
*TP1
*TP2
IC1 M52684AP
S-SEP
OSC1
OSC2
OSC3
VDD
AFC
RO
SYNC
GND
VR1
VR1
VR2
VF
VO
IC2 M35010-089SP
VDD1(D)
VERT
HOR
OSCIN
OSCOUT
P3
BLUE(H)
CO1
BLNK1
VSS
OSC1
OSC2
CS
SCLK
SIN
AC
VDD2(A)
CVIDEO
LECHA
CVIN
WF1
CN1
SW5V
VIDEO IN
GND(A)
N.C.
VIDEO OUT
GND(D)
BLNK
CO
RST
S.DATA
S.CLK
CS
BLUE(H)
SYNC DET
TO VIDEO I/O JP305 (Page 4-29)
1 7 ON SCREEN

"*"MARK ELEMENTS ARE NOT MOUNTED.

S35196

4.21 ON SCREEN CIRCUIT BOARD


R1
R2
R3
TP2
R12
C14
R37
Q11
R39
R38
C19
B17
1
7
Q4
Q1
R6
Q2
CF1
D1
Q3
B19
X1
R36
C13
R10
C
C5
C6
R5
R4
C1
B21
R13
R11
B25
B18
8
R8
14
11
IC2
20
C10
C11
B22
B23
C24
R27
R26
C23
R29
R28
C7
C2
C3
C4
R7
C20
C21
LC1
B
IC1
7
B24
C8
C12
R9
R25
10
R30
1
R19
Q9
Q5
R14
C9
R16
R24
B26
C18
R21
R34
R33
L2
C22
C16
Q6
Q12
R40
Q7
R18
R20
C15
TP1
C17
ON SCREEN PWB ASS'Y
R41
Q8
R23
C25
R17
B20
R35
R22
Q10
CN1
A
L3
R15
15
1
B16
PB20631 -01-012 ON SCREEN PWB 3
B15
L1
4
1

MAIN COMPONENT LOCATION GUIDE <ON SCREEN BOARD>

REF No.	LOCATION
IC	
IC1	1B
IC2	3B

REF No.	LOCATION
TRANSISTOR	
Q1	1C
Q2	1C
Q3	2C
Q4	2C
Q5	1B
Q6	2A
Q7	3B
Q8	2A
Q9	1B
Q10	3A

REF No.	LOCATION
DIODE	
D1	2C

REF No.	LOCATION
CONNECTOR	
CN1	3A

REF No.	LOCATION
ADJUSTMENT	
C21	4B

REF No.	LOCATION
TEST POINT	
TP1	4A
TP2	3C

LEADLESS COMPONENT PARTS LOCATION GUIDE <ON SCREEN BOARD>

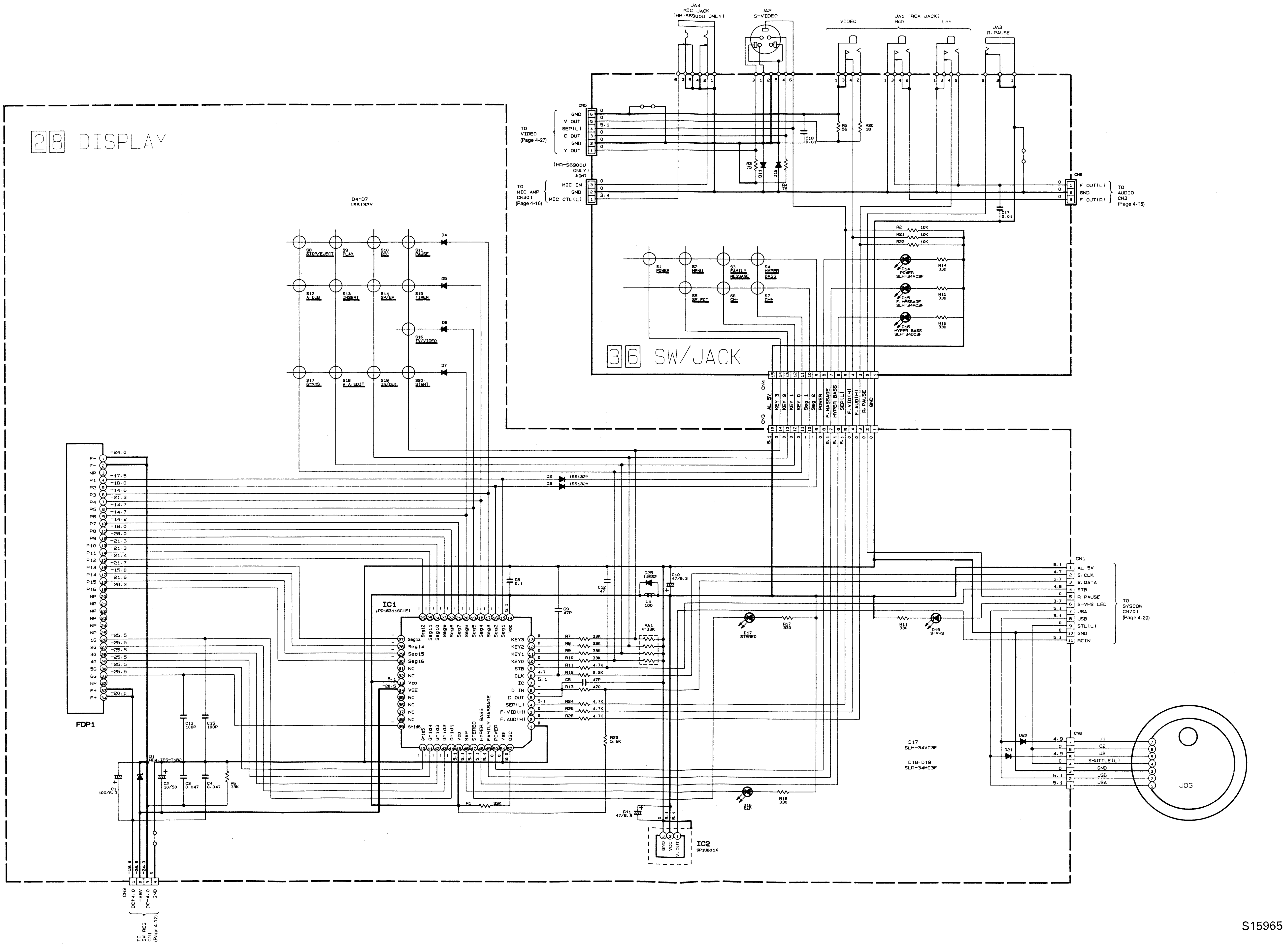
REF No.	LOCATION
TRANSISTOR	
Q1	1C
Q2	1C
Q3	2C
Q4	2C
Q5	1B
Q6	2A
Q7	3B
Q8	2A
Q9	1B
Q10	3A
Q11	3C
Q12	1B

REF No.	LOCATION
DIODE	
D1	2C

REF No.	LOCATION
RESISTOR	
R1	1C
R2	1C
R3	2C
R4	2C
R5	1C
R6	1C
R7	2B
R8	1B
R9	2B
R10	4C
R11	3C
R13	3C
R14	1B
R15	1A
R16	2B
R17	3A
R18	3A
R19	4B
R20	4A
R21	4B
R22	1A
R23	2A
R24	2B
R26	3B
R27	3B
R28	4B
R29	3B
R33	3B
R34	3B
R35	1A
R36	3C
R37	3C
R38	4C
R39	4C
R40	3A
R41	2A

REF No.	LOCATION
CAPACITOR	
C2	1B
C3	1B
C4	1B
C7	1B
C11	4B
C12	2B
C14	3C
C17	4A
C18	3B
C19	4C
C20	4B
C22	4B
C23	3B
C25	2A

4.22 DISPLAY AND SW/JACK SCHEMATIC DIAGRAMS


28 DISPLAY
36 SW/JACK
JA4 MIC JACK (HR-S6900U ONLY)
JA2 S-VIDEO
JA1 (RCA JACK) VIDEO Rch Lch
JA3 R. PAUSE
CN5
GND
V OUT
SEP(L)
C OUT
GND
Y OUT
TO VIDEO (Page 4-27)
(HR-S6900U ONLY) *CN7
MIC IN
GND
MIC CTL(L)
TO MIC AMP CN301 (Page 4-16)
CN6
F OUT(L)
GND
F OUT(R)
TO AUDIO CN3 (Page 4-15)
D4-D7 1SS132Y
S8 STOP/EJECT
S9 PLAY
S10 REC
S11 PAUSE
S12 A.DUB
S13 INSERT
S14 SP/EP
S15 TIMER
S16 TV/VIDEO
S17 S-VHS
S18 R.A.EDIT
S19 IN/OUT
S20 START
S1 POWER
S2 MENU
S3 FAMILY MESSAGE
S4 HYPER BASS
S5 SELECT
S6 CH-
S7 CH+
D14 POWER SLH-34VC3F
D15 F.MESSAGE SLH-34MC3F
D16 HYPER BASS SLH-34DC3F
CN4
CN3
AL 5V
KEY 3
KEY 2
KEY 1
KEY 0
Seg 1
Seg 2
POWER
F.MASSAGE
HYPER BASS
SEP(L)
F.VID(H)
F.AUD(H)
R.PAUSE
GND
FDP1
D2 1SS132Y
D3 1SS132Y
IC1 μPD16311GC(E)
D25 11ES2
L1 100
RA1 4-33K
C10 47/6.3
IC2 GP1U801X
C11 47/6.3
CN1
AL 5V
S.CLK
S.DATA
STB
R PAUSE
S-VHS LED
JSA
JSB
STL(L)
GND
RCIN
TO SYSCON CN701 (Page 4-20)
D17 STEREO
D18 SAP
D19 S-VHS
D17 SLH-34VC3F
D18, D19 SLR-34MC3F
CN8
J1
C2
J2
SHUTTLE(L)
GND
JSB
JSA
JOG
D20
D21
D1 RD4.7ES-T1B2
C1 100/6.3
C2 10/50
C3 0.047
C4 0.047
R6 33K
C13 100P
C15 100P
R1 33K
CN2
DC+4.0
-28V
DC-4.0
GND
TO SW REG CH1 (Page 4-12)
S15965
A
B
C
D
E
F
G
H
1
2
3
4
5
6

4.23 DISPLAY AND SW/JACK CIRCUIT BOARDS

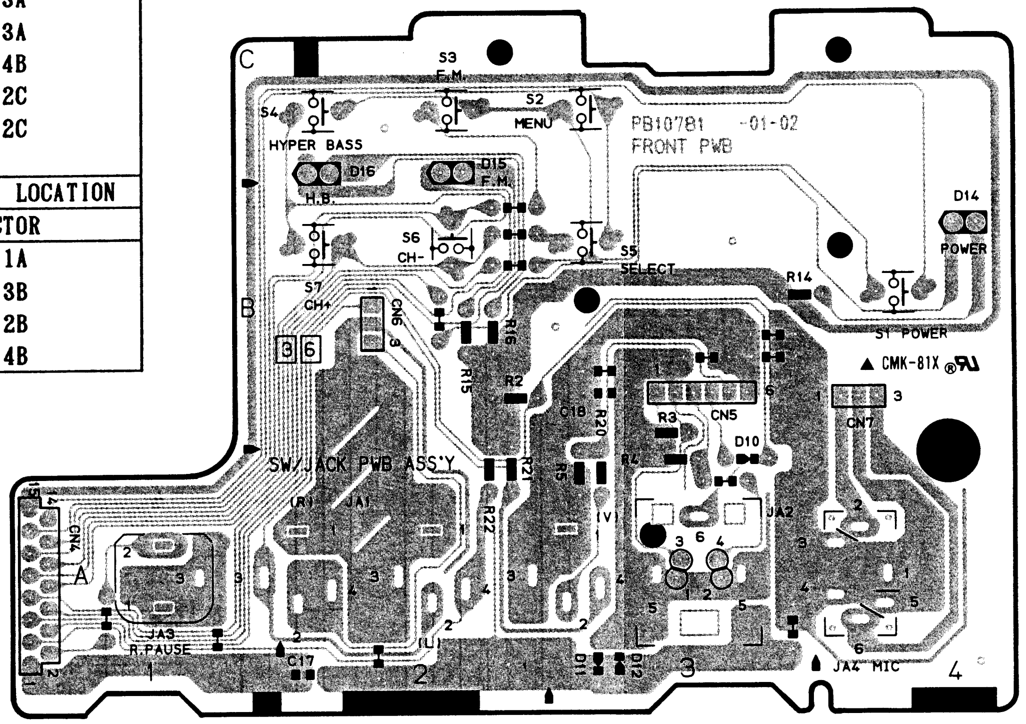
MAIN COMPONENT PARTS LOCATION
GUIDE<DISPLAY C.B.A>

REF No.	LOCATION
IC	
IC1	7A
IC2	10A
REF No.	LOCATION
DIODE	
D1	3A
D2	10A
D3	10A
D4	8A
D5	8A
D6	8A
D7	8A
D17	5A
D18	5A
D19	5A
D20	1C
D21	1B
D25	1A
REF No.	LOCATION
CONNECTOR	
CN1	2C
CN2	2B
CN3	10A
CN8	1B

MAIN COMPONENT PARTS LOCATION
GUIDE<SW/JACK C.B.A>

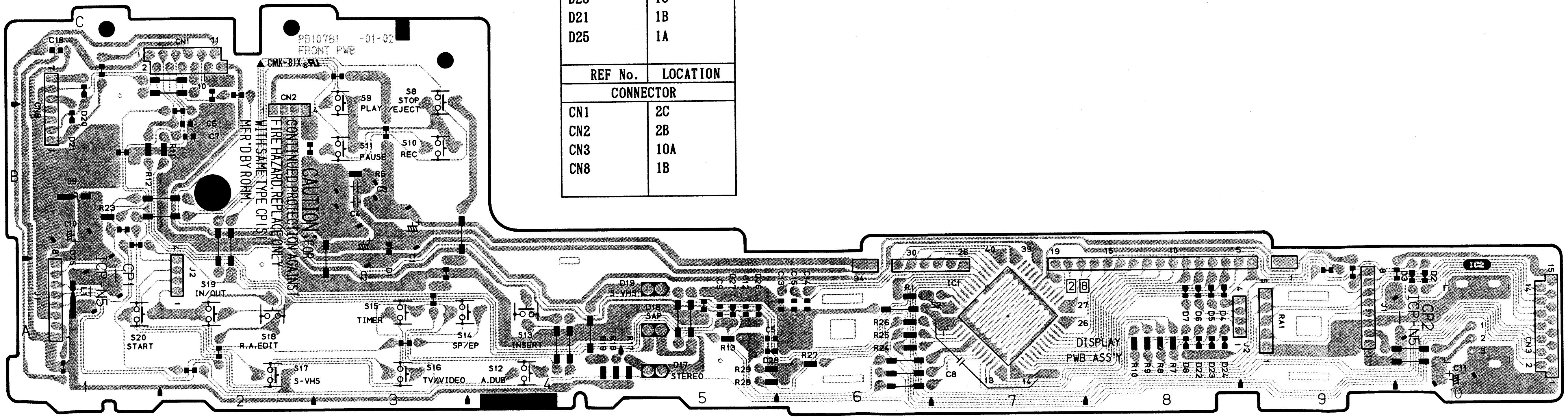
REF No.	LOCATION
DIODE	
D11	3A
D12	3A
D14	4B
D15	2C
D16	2C
REF No.	LOCATION
CONNECTOR	
CN4	1A
CN5	3B
CN6	2B
CN7	4B

— SW/JACK —



PB10781 -01-02
FRONT PWB
SW/JACK PWB ASS'Y
S1 POWER
S2 MENU
S3 F.M.
S4 HYPER BASS
S5 SELECT
S6 CH-
S7 CH+
D14 POWER
JA1
JA2
JA3 R.PAUSE
JA2 MIC
CN4
CN5
CN6
CN7
CMK-81X
A
B
C
1
2
3
4

— DISPLAY —



PB10781 -01-02
FRONT PWB
CMK-81X
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE CP1(S) MFR'D BY ROHM.
DISPLAY PWB ASS'Y
S8 STOP /EJECT
S9 PLAY
S10 REC
S11 PAUSE
S12 A.DUB
S13 INSERT
S14 SP/EP
S15 TIMER
S16 TV/VIDEO
S17 S-VHS
S18 R.A.EDIT
S19 IN/OUT
S20 START
D17 STEREO
D18 SAP
D19 S-VHS
IC1
IC2
CN1
CN2
CN3
CN8
CP1 ICP-N5
CP2 ICP-N5
A
B
C
1
2
3
4
5
6
7
8
9
10

6

5

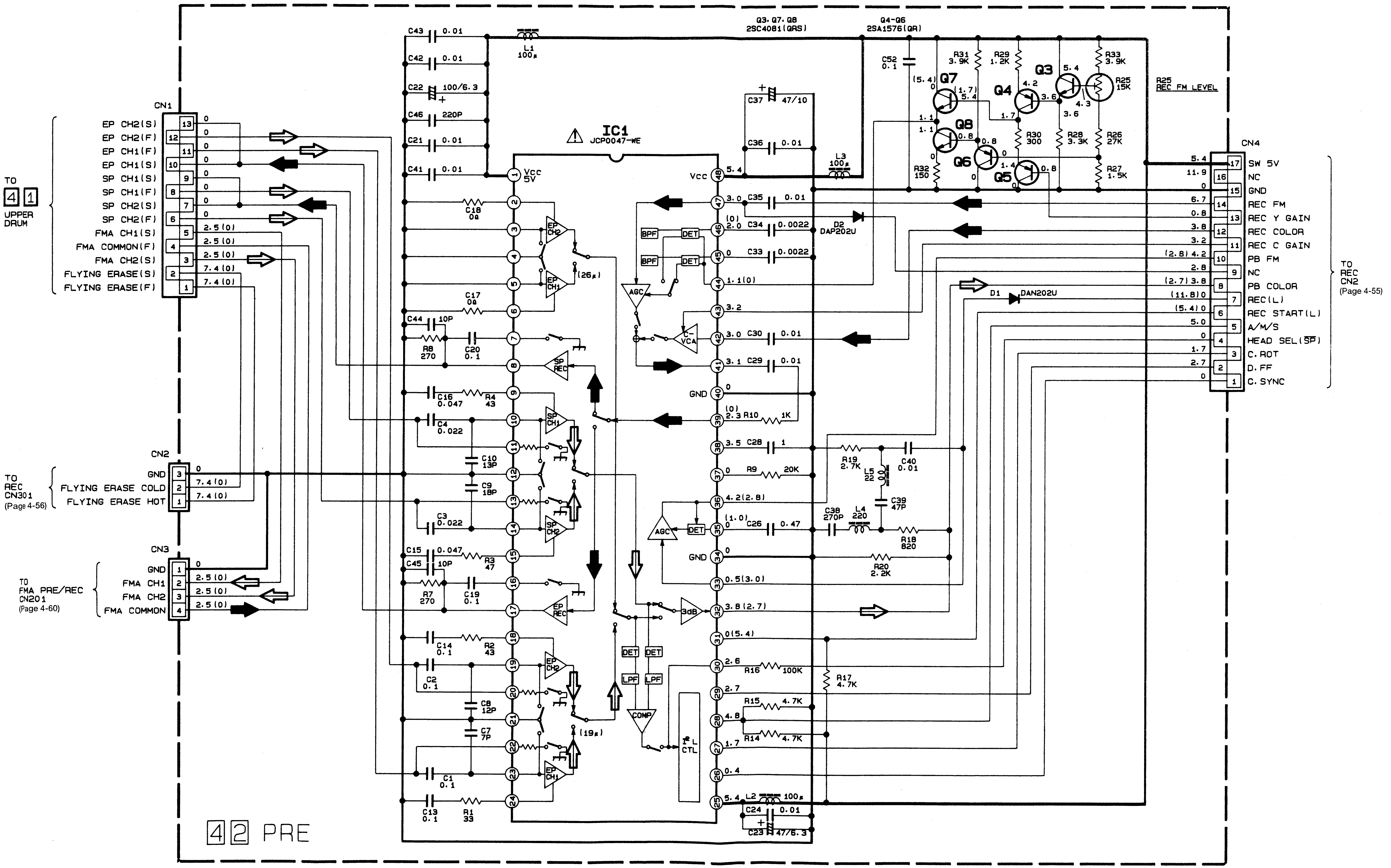
4

3

2

1

4.24 PRE SCHEMATIC DIAGRAM



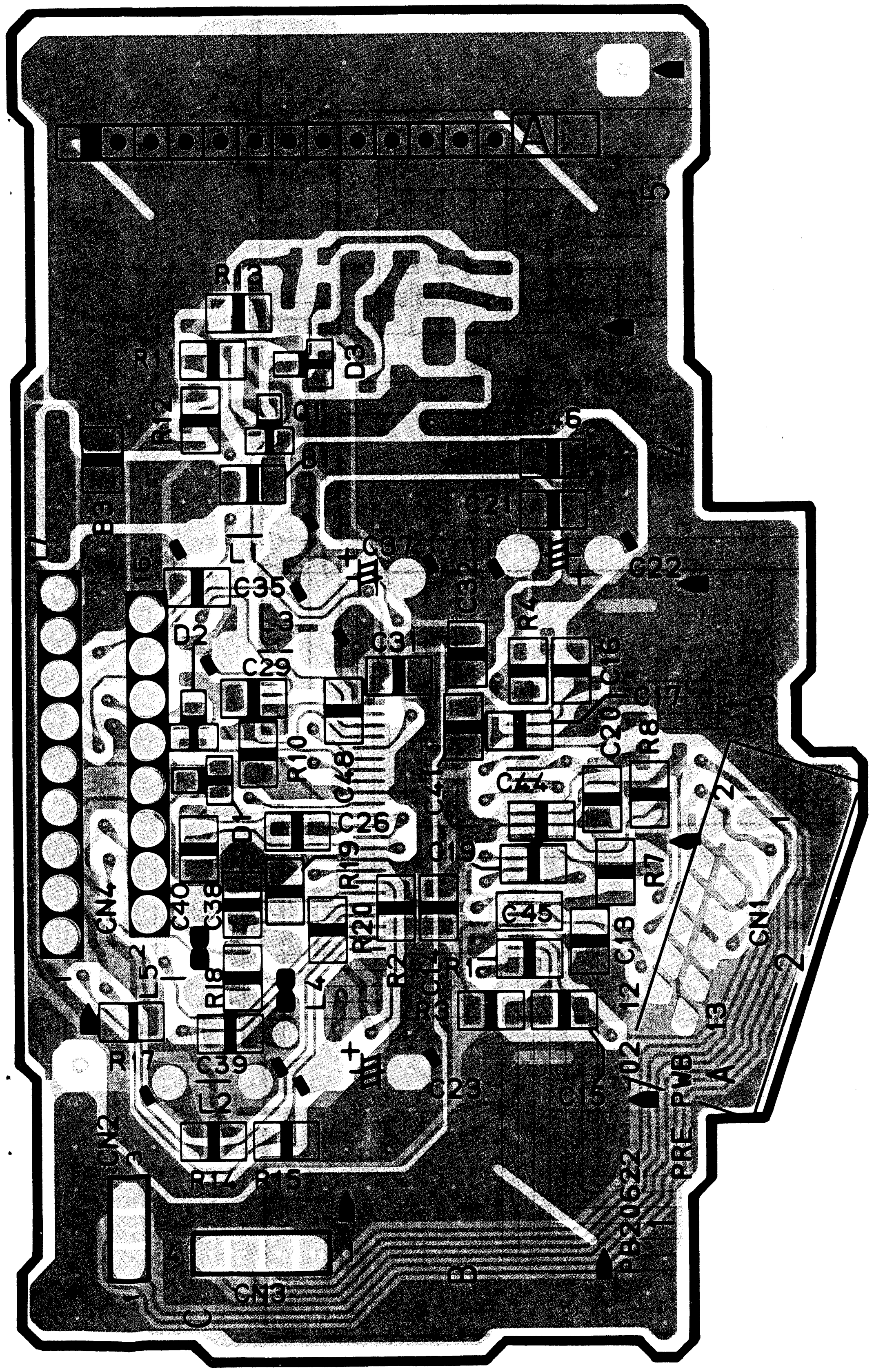
TO 4 1 UPPER DRUM
CN1
EP CH2(S) 13
EP CH2(F) 12
EP CH1(F) 11
EP CH1(S) 10
SP CH1(S) 9
SP CH1(F) 8
SP CH2(S) 7
SP CH2(F) 6
FMA CH1(S) 5
FMA COMMON(F) 4
FMA CH2(S) 3
FLYING ERASE(S) 2
FLYING ERASE(F) 1
TO REC CN301 (Page 4-56)
CN2
GND 3
FLYING ERASE COLD 2
FLYING ERASE HOT 1
TO FMA PRE/REC CN201 (Page 4-60)
CN3
GND 1
FMA CH1 2
FMA CH2 3
FMA COMMON 4
IC1 JCP0047-WE
Q3, Q7, Q8 2SC4081(QRS)
Q4-Q6 2SA1576(QR)
R25 REC FM LEVEL
CN4
SW 5V 17
NC 16
GND 15
REC FM 14
REC Y GAIN 13
REC COLOR 12
REC C GAIN 11
PB FM 10
NC 9
PB COLOR 8
REC(L) 7
REC START(L) 6
A/M/S 5
HEAD SEL(SP) 4
C. ROT 3
D. FF 2
C. SYNC 1
TO REC CN2 (Page 4-55)
C43 0.01
C42 0.01
C22 100/6.3
C46 220P
C21 0.01
C41 0.01
L1 100μ
C37 47/10
C36 0.01
L3 100μ
C52 0.1
R31 3.9K
R29 1.2K
R33 3.9K
R25 15K
R30 300
R28 3.3K
R26 27K
R32 150
R27 1.5K
Q7 Q8 Q6 Q4 Q5 Q3
C35 0.01
C34 0.0022
C33 0.0022
D2 DAP202U
D1 DAN202U
C30 0.01
C29 0.01
R10 1K
C28 1
R9 20K
R19 2.7K
L5 22
C40 0.01
C39 47P
C38 270P
L4 220
C26 0.47
R18 820
R20 2.2K
R16 100K
R17 4.7K
R15 4.7K
R14 4.7K
L2 100μ
C24 0.01
C23 47/6.3
R18 0Ω
C17 0Ω
C44 10P
R8 270
C20 0.1
C16 0.047
R4 43
C4 0.022
C10 13P
C9 18P
C3 0.022
C15 0.047
R3 47
C45 10P
R7 270
C19 0.1
C14 0.1
R2 43
C2 0.1
C8 12P
C7 7P
C1 0.1
C13 0.1
R1 33
EP CH2
EP CH1
SP REC
SP CH1
SP CH2
EP REC
AGC
BPF
DET
C-VCA
3dB
LPF
COMP
L CTL
(26μ)
(19μ)
Vcc 5V
GND
4 2 PRE

S35197

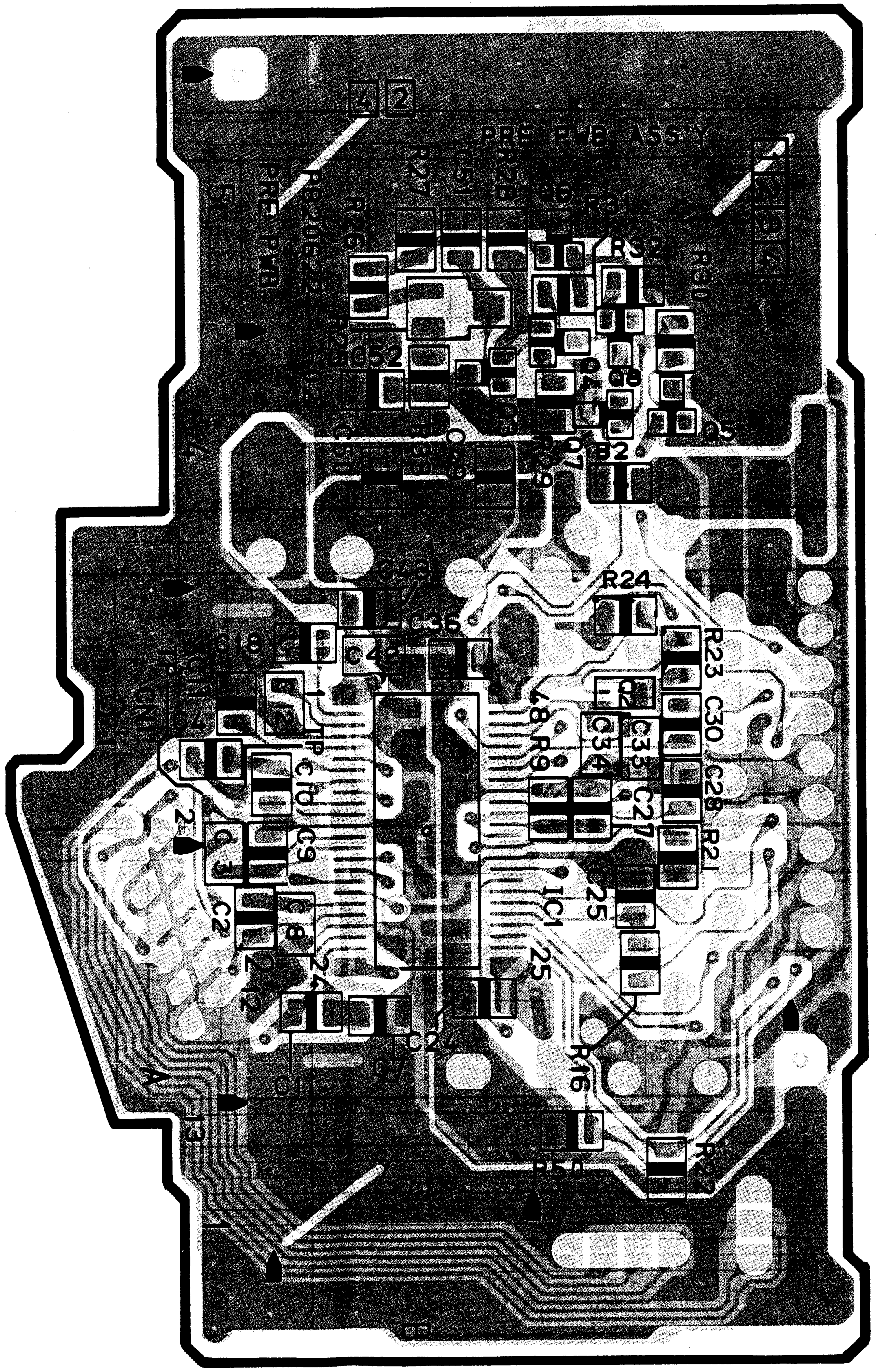
A B C D E F G H

4.25 PRE CIRCUIT BOARD

— FOIL SIDE —
(B)


A
5
R3
R1
D3
Q1
B1
C46
R8
L1
C21
C37
C22
C35
D2
L3
C3
C32
R4
C16
C29
C17
R10
C48
C20
R8
C44
C26
D1
R19
C19
R7
CN1
CN4
C40
C38
R20
C45
C18
L5
R18
R2
R11
13
12
R17
C39
L2
C23
C15
A
PRE PWB
PB20622
CN2
R14
R15
CN3

— COMPONENT SIDE —
(A)


4
2
PRE PWB ASS'Y
5
PRE PWB
PB20622
R26
R27
C51
R28
Q6
R31
R32
R30
C52
Q2
Q4
Q8
Q5
C50
Q3
C49
R29
Q7
B2
C43
R24
CN1
C18
C36
C42
R23
C30
C28
TP
C10
C4
R9
C34
C33
C27
C24
R21
C11
C9
IC1
C3
C2
C7
C8
C12
R25
25
C24
C1
Q7
R16
A
13
R50
R22

MAIN COMPONENT LOCATION GUIDE
<PRE BOARD>

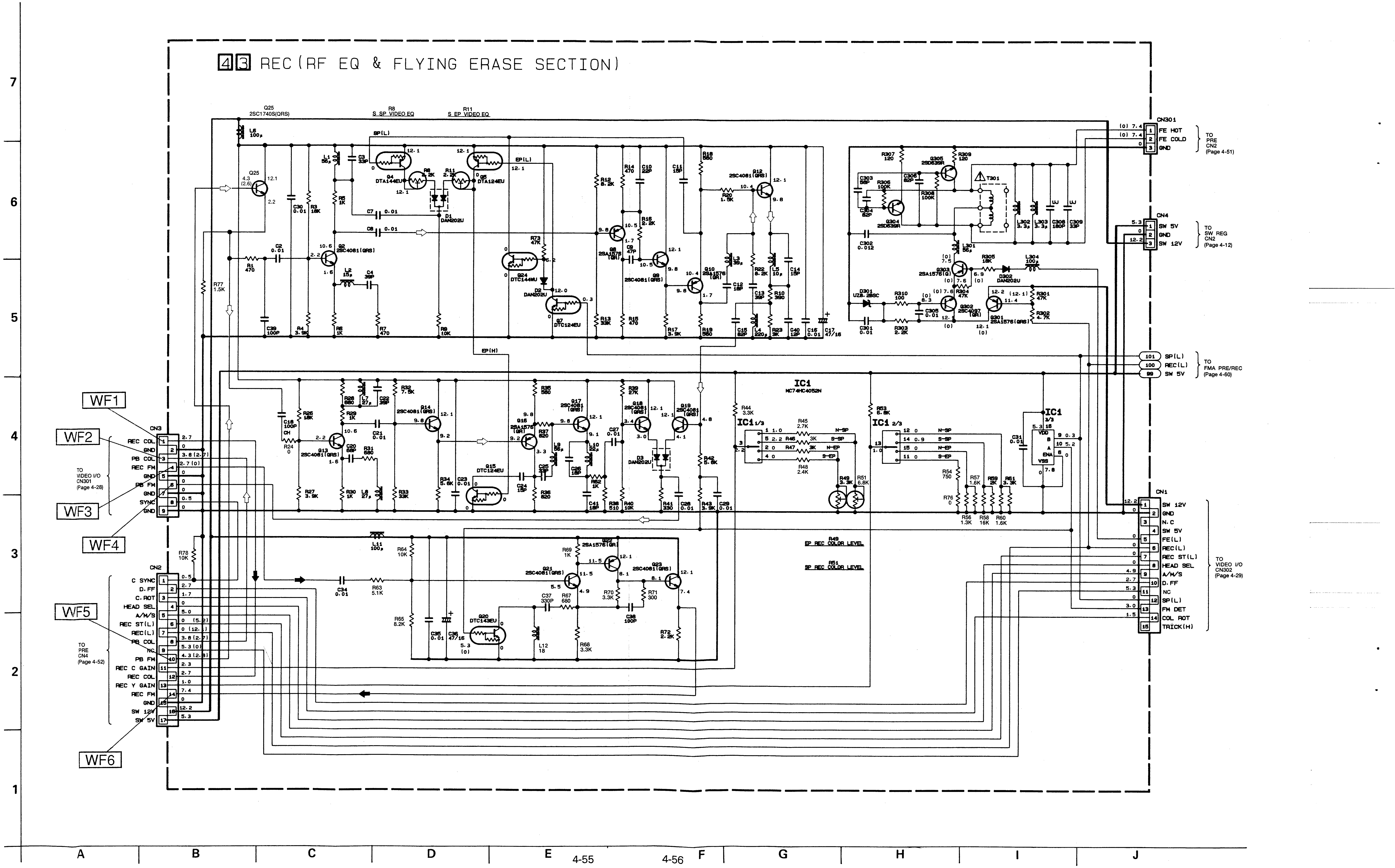
REF No.	LOCATION
IC	
IC1	A-3B
REF No.	LOCATION
TRANSISTOR	
Q3	A-4B
Q4	A-4C
Q5	A-4C
Q6	A-5C
Q7	A-4C
Q8	A-4C
REF No.	LOCATION
DIODE	
D1	B-3C
D2	B-3C
REF No.	LOCATION
CONNECTOR	
CN1	B-2A
CN2	B-1C
CN3	B-1C
CN4	B-2C
REF No.	LOCATION
ADJUSTMENT	
R25	A-5B

LEADLESS COMPONENT PARTS LOCATION GUIDE
<PRE BOARD>

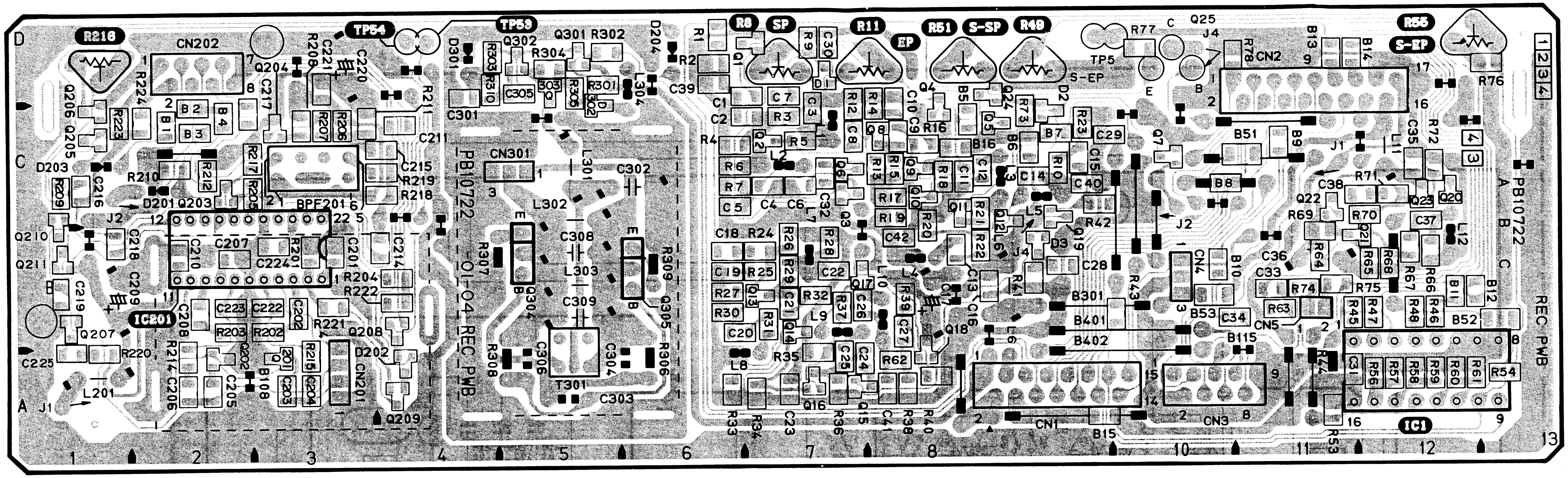
REF No.	LOCATION
IC	
IC1	A-3B
REF No.	LOCATION
TRANSISTOR	
Q1	B-4C
Q2	A-3C
Q3	A-4B
Q4	A-4C
Q5	A-4C
Q6	A-5C
Q7	A-4C
Q8	A-4C
REF No.	LOCATION
DIODE	
D1	B-3C
D2	B-3C
D3	B-4C
REF No.	LOCATION
RESISTOR	
R1	B-2B
R2	B-2B
R3	B-2B
R4	B-3B
R7	B-2A
R8	B-3A
R9	A-3C
R10	B-3C
R11	B-4C
R12	B-4C
R13	B-5C
R14	B-1C
R15	B-1C
R16	A-2C
R17	B-2C
R18	B-2C
R19	B-2C
R20	B-2C
R21	A-2C
R22	A-1C
R23	A-3C
R24	A-3C
R25	A-5B
R26	A-5B
R27	A-5B
R28	A-5B
R29	A-4C
R30	A-4C
R31	A-5C
R32	A-5C
R33	A-4B
R50	A-1C

REF No.	LOCATION
CAPACITOR	
C1	A-2B
C2	A-2A
C3	A-2A
C4	A-3A
C7	A-2B
C8	A-2B
C9	A-2A
C10	A-3A
C11	A-3A
C12	A-3B
C13	B-2B
C14	B-2B
C15	B-2B
C16	B-3B
C17	B-3B
C18	A-3B
C19	B-2B
C20	B-3A
C21	B-4B
C24	A-2B
C25	A-2C
C26	B-3C
C27	A-3C
C28	A-3C
C29	B-3C
C30	A-3C
C31	B-3B
C32	B-3B
C33	A-3C
C34	A-3C
C35	B-4C
C36	A-3B
C38	B-2C
C39	B-2C
C40	B-2C
C41	B-3B
C42	A-3B
C43	A-3B
C44	B-3B
C45	B-2B
C46	B-4B
C48	B-3C
C49	A-4B
C50	A-4B
C51	A-5B
C52	A-4B

4.26 REC SCHEMATIC DIAGRAM


4 3 REC (RF EQ & FLYING ERASE SECTION)
Q25 2SC1740S(QRS)
R8 S SP VIDEO EQ
R11 S EP VIDEO EQ
SP(L)
EP(L)
EP(H)
Q4 DTA144EU
Q5 DTA124EU
D1 DAN202U
Q2 2SC4081(QRS)
Q24 DTC144WU
D2 DAN202U
Q7 DTC124EU
Q8 2SA1576(QR)
Q9 2SC4081(QRS)
Q10 2SA1576(QR)
Q12 2SC4081(QRS)
Q305 2SD639R
Q304 2SD639R
T301
Q303 2SA1576(Q)
D302 DAN202U
D301 UZ8.2BSC
Q302 2SC4097(QR)
Q301 2SA1576(QRS)
CN301
FE HOT
FE COLD
GND
TO PRE CN2 (Page 4-51)
CN4
SW 5V
GND
SW 12V
TO SW REG CN2 (Page 4-12)
SP(L)
REC(L)
SW 5V
TO FMA PRE/REC (Page 4-60)
IC1 MC74HC4052N
IC1 1/3
IC1 2/3
IC1 3/3
N-SP
S-SP
N-EP
S-EP
R49 EP REC COLOR LEVEL
R51 SP REC COLOR LEVEL
Q13 2SC4081(QRS)
Q14 2SC4081(QRS)
Q15 DTC124EU
Q16 2SA1576(QR)
Q17 2SC4081(QRS)
Q18 2SC4081(QRS)
Q19 2SC4081(QRS)
D3 DAN202U
Q20 DTC143EU
Q21 2SC4081(QRS)
Q22 2SA1576(QR)
Q23 2SC4081(QRS)
WF1
WF2
WF3
WF4
WF5
WF6
CN3
REC COL
GND
PB COL
REC FM
GND
PB FM
GND
SYNC
GND
TO VIDEO I/O CN301 (Page 4-28)
CN2
C SYNC
D. FF
C. ROT
HEAD SEL
A/N/S
REC ST(L)
REC(L)
PB COL
NC
PB FM
REC C GAIN
REC COL
REC Y GAIN
REC FM
GND
SW 12V
SW 5V
TO PRE CN4 (Page 4-52)
CN1
SW 12V
GND
N. C
SW 5V
FE(L)
REC(L)
REC ST(L)
HEAD SEL
A/N/S
D. FF
NC
SP(L)
FM DET
COL ROT
TRICK(H)
TO VIDEO I/O CN302 (Page 4-29)
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J

4.27 REC CIRCUIT BOARD


PB10722-01-04 REC PWB
A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
12
13
IC1
IC201
CN1
CN2
CN3
CN4
CN5
CN201
CN202
CN301
R8
R11
R49
R51
R56
R216
SP
EP
S-SP
S-EP
TP5
TP53
TP54
BPF201
T301
L201
L301
L302
L303
J1
J2
J4
Q301
Q302
R302
R304
C301
C302
C303
C304
C305
C306
C308
C309
Q25
R77
R76
B51
B8
B15
B301
B401
B402
B52
B53
B115

MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC1	12A
TRANSISTOR	
Q2	7C
Q4	8C
Q5	9C
Q7	10C
Q8	8C
Q9	8C
Q10	8C
Q12	8B
Q13	7B
Q14	7B
Q15	7A
Q16	7A
Q17	7B
Q18	8A
Q19	9B
Q20	12C
Q21	12B
Q22	11C
Q23	12C
Q24	9D
Q25	10D
DIODE	
D1	7D
D2	9C
D3	9B

REF. No.	LOCATION
CONNECTIOR	
CN1	9A
CN2	11D
CN3	10A
CN4	10B
CN5	11B
CN201	3A
CN202	2D
CN301	5C
ADJUSTMENT	
R8	7D
R11	8D
R49	9D
R51	8D
R216	1D
TP	
TP5	9D
TP53	4D
TP54	4D

LEADLESS COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
TRANSISTOR	
Q1	7D
Q2	7C
Q3	7C
Q4	8C
Q5	9C
Q6	7C
Q7	10C
Q8	8C
Q9	8C
Q10	8C
Q11	8C
Q12	9B
Q13	7B
Q14	7B
Q15	7A
Q16	7A
Q17	7B
Q18	8A
Q19	9B
Q20	12C
Q21	12B
Q22	11C
Q23	12C
Q24	9D

REF. No.	LOCATION
DIODE	
D1	7D
D2	9C
D3	9B

REF. No.	LOCATION
RESISTOR	
R1	6D
R2	6D
R3	7C
R4	6C
R5	7C
R6	6C
R7	6C
R9	7D
R10	9C
R12	7D
R13	8C
R14	8D
R15	8C
R16	8C
R17	8C
R18	8C
R19	8C
R20	8B
R21	8C
R22	8B
R23	9C
R24	7B
R25	7B
R26	7B
R27	6B
R28	7B
R29	7B
R30	6B
R31	7B
R32	7B
R33	6A
R34	7A
R35	7A
R36	7A
R37	7B

REF. No.	LOCATION
RESISTOR	
R38	8A
R39	8B
R40	5A
R41	9B
R42	9C
R43	10B
R45	11B
R46	12B
R47	12B
R48	12B
R53	11A
R54	13A
R56	12A
R57	12A
R58	12A
R59	12A
R60	12A
R61	12A
R62	5A
R63	11B
R64	11B
R65	12B
R66	12B
R67	12B
R68	12B
R69	11B
R70	12C
R71	12C
R72	12C
R73	9C
R74	11B
R75	11B
R76	13D
R77	10D
R78	10D

REF. No.	LOCATION
CAPACITOR	
C1	6C
C2	6C
C3	7C
C4	7C
C5	6C
C6	7C
C7	7D
C8	7C
C9	8C
C10	8C
C11	8C
C12	8C
C13	8B
C14	9C
C15	9C
C16	8B
C18	6B
C19	6B
C20	6B
C21	7B
C22	7B
C23	7A
C24	7A
C25	7A
C26	7B
C27	8B
C28	9B
C29	10C
C30	7D
C31	11A
C33	10B
C34	11B
C35	12C
C38	12C
C39	6D

REF. No.	LOCATION
CAPACITOR	
C40	9C
C41	8A

LEADLESS COMPONENT PARTS LOCATION GUIDE <FM AUDIO>

REF. No.	LOCATION
TRANSISTOR	
Q201	3A
Q202	2A
Q203	2C
Q204	3C
Q205	1C
Q206	1C
Q207	1B
Q208	4B
Q209	4A
Q210	1B
Q211	1B

REF. No.	LOCATION
DIODE	
D202	4A

REF. No.	LOCATION
RESISTOR	
R201	3B
R202	3B
R203	2B
R204	4B
R205	1C
R206	3C
R207	3C
R208	3C
R209	1C
R210	2C
R211	3C
R212	2C
R214	2A
R215	3A

REF. No.	LOCATION
RESISTOR	
R217	2C
R218	4C
R219	4C
R220	1A
R222	4B
R223	1C
R224	2C

REF. No.	LOCATION
CAPACITOR	
C201	3B
C202	3B
C203	3A
C204	3A
C205	2A
C206	2A
C207	2B
C208	2B
C210	2B
C211	4C
C214	4B
C215	4C
C216	1C
C217	2C
C218	1B
C219	1B
C221	3D
C222	3B
C223	2B
C224	3B
C225	1B

LEADLESS COMPONENT PARTS LOCATION GUIDE <FIYING ERASE>

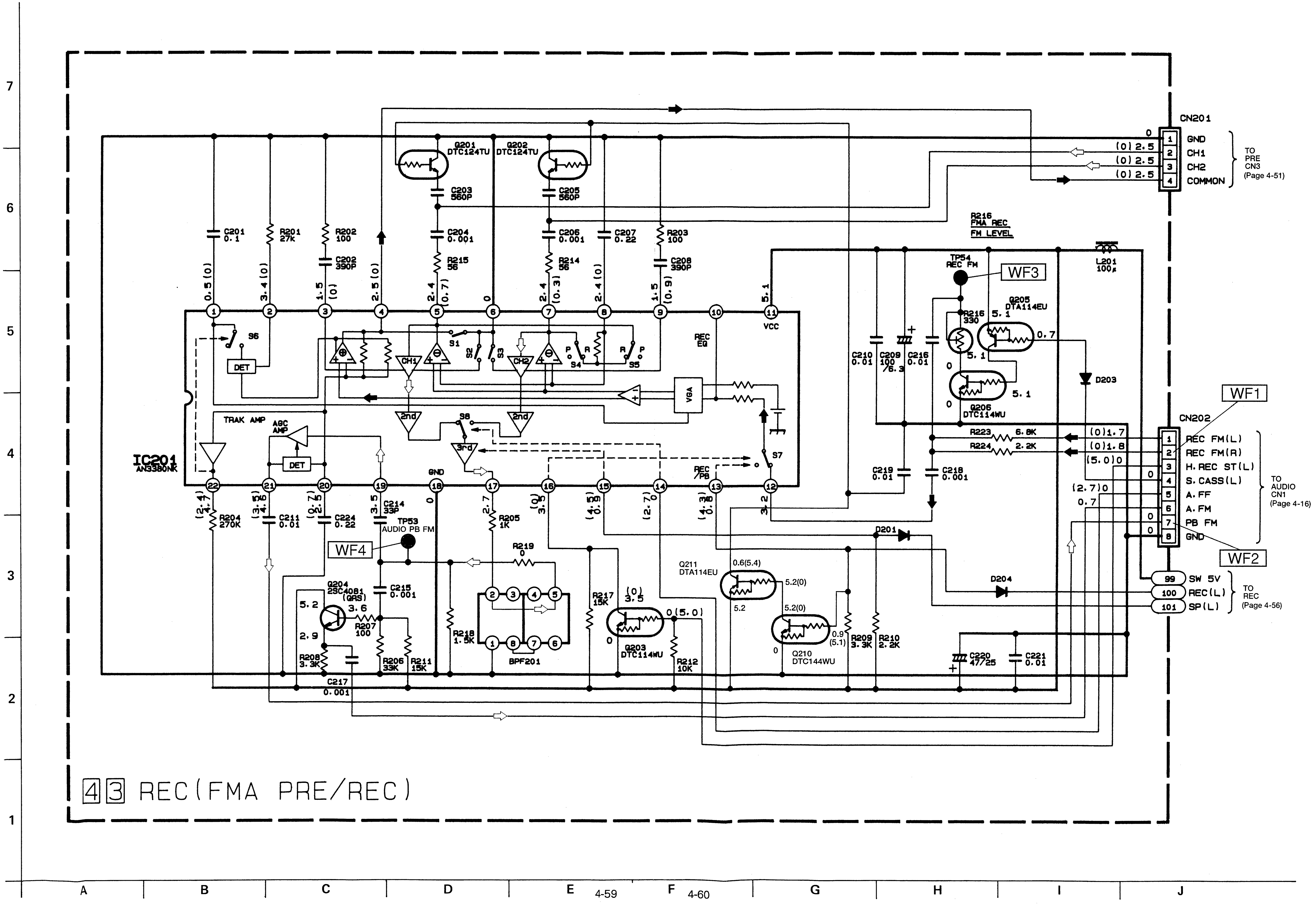
REF. No.	LOCATION
TRANSISTOR	
Q301	5D
Q302	5D
Q303	5D

REF. No.	LOCATION
DIODE	
D302	5C

REF. No.	LOCATION
RESISTOR	
R301	5D
R302	5D
R303	4D
R304	5D
R305	4D
R310	4D

REF. No.	LOCATION
CAPACITOR	
C301	4D
C305	5D

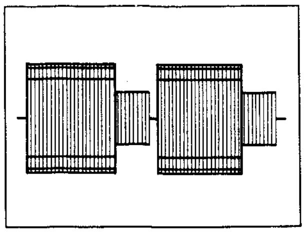
4.28 FM AUDIO PRE/REC SCHEMATIC DIAGRAM


IC201
AN3380NK
VCC
REC EQ
VGA
TRAK AMP
AGC AMP
DET
CH1
CH2
2nd
3rd
S1
S2
S3
S4
S5
S6
S7
S8
REC /PB
GND
Q201 DTC124TU
Q202 DTC124TU
C203 560P
C205 560P
C201 0.1
R201 27k
R202 100
C202 390P
C204 0.001
R215 56
C206 0.001
R214 56
C207 0.22
R203 100
C208 390P
R216 FMA REC FM LEVEL
TP54 REC FM
WF3
R216 330
Q205 DTA114EU
Q206 DTC114WU
C210 0.01
C209 100 /6.3
C216 0.01
L201 100μ
D203
C219 0.01
C218 0.001
R223 6.8K
R224 2.2K
D201
D204
Q211 DTA114EU
Q210 DTC144WU
R209 3.3K
R210 2.2K
C220 47/25
C221 0.01
R204 270K
C211 0.01
C224 0.22
C214 33P
TP53 AUDIO PB FM
WF4
Q204 2SC4081 (QRS)
R207 100
C215 0.001
R208 3.3K
C217 0.001
R206 33K
R211 15K
R205 1K
R219 0
R218 1.5K
BPF201
R217 15K
Q203 DTC114WU
R212 10K
CN201
GND
CH1
CH2
COMMON
TO PRE CN3 (Page 4-51)
CN202
WF1
REC FM(L)
REC FM(R)
H.REC ST(L)
S.CASS(L)
A.FF
A.FM
PB FM
GND
WF2
TO AUDIO CN1 (Page 4-16)
SW 5V
REC(L)
SP(L)
TO REC (Page 4-56)
4 3 REC(FMA PRE/REC)
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7

4.29 WAVEFORMS

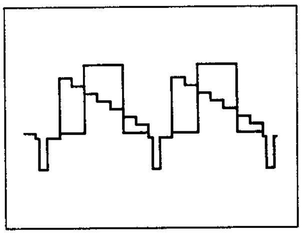
— VIDEO I/O —

WF1 TP330



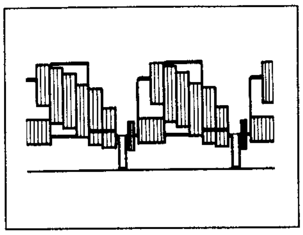
REC/PB 1.7 Vp-p

WF2 TP320



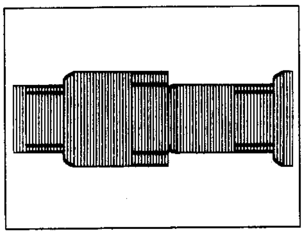
REC/PB 2.0 Vp-p

WF3 TP310



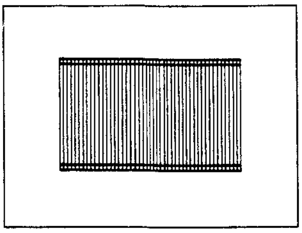
REC/PB 1.2 Vp-p

WF4 TP306



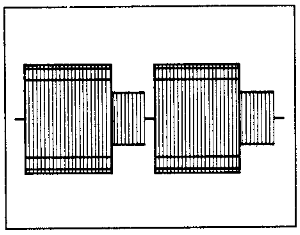
PB 0.68 Vp-p

WF5 TP301



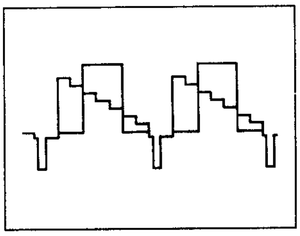
REC 0.34 Vp-p

WF6 TP305



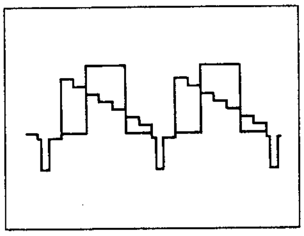
REC 0.2 Vp-p

WF7 TP357



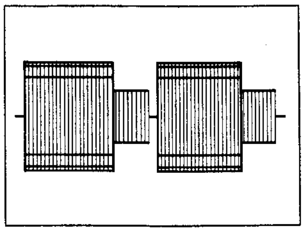
REC 1.1 Vp-p

WF8 TP355



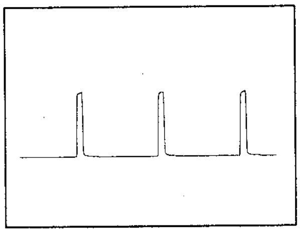
PB 0.6 Vp-p

WF9 TP356



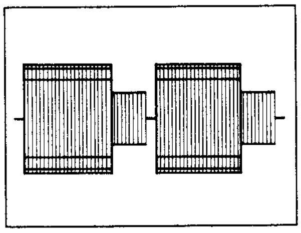
PB 0.8 Vp-p

WF10 TP312



REC 4.6 Vp-p

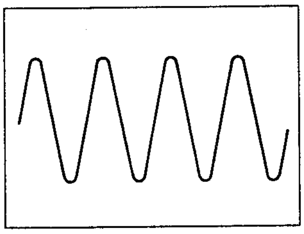
WF11 TP324



REC 1.0 Vp-p

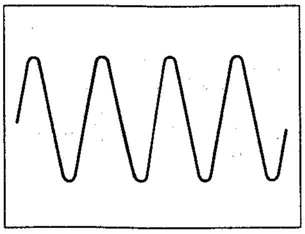
— AUDIO —

WF1



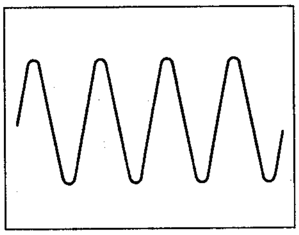
REC/PB 2.2Vp-p

WF2



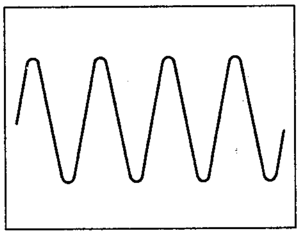
REC 2.3 Vp-p

WF3



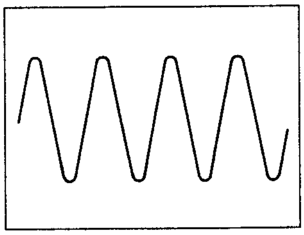
REC/PB 0.06 Vp-p

WF4



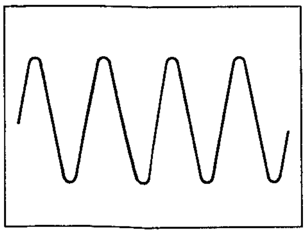
REC/PB 0.23 Vp-p

WF5 TP33



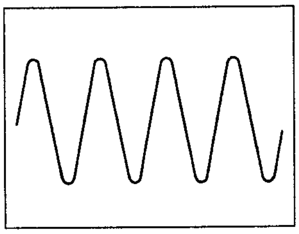
REC 4.2 Vp-p

WF6



REC 0.08 Vp-p

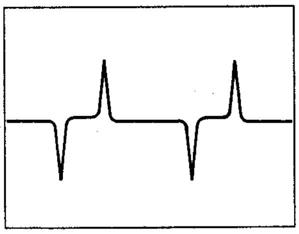
WF7



REC 0.06 Vp-p

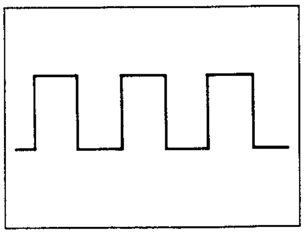
— SERVO —

WF1 TP401

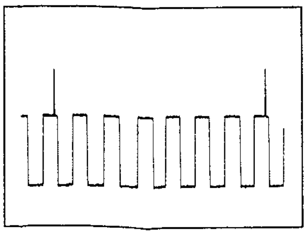


PB 2.6 Vp-p

WF2 TP411

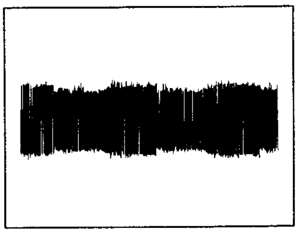


WF3



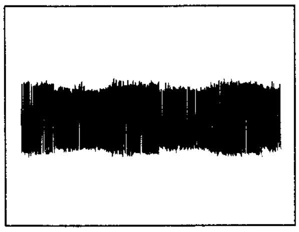
REC/PB 4.0 Vp-p

WF4



PB 0.12 Vp-p

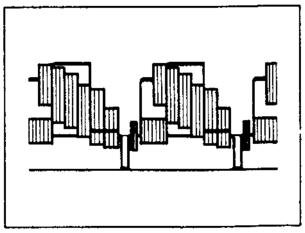
WF5



PB 0.015 Vp-p

— ON SCREEN —

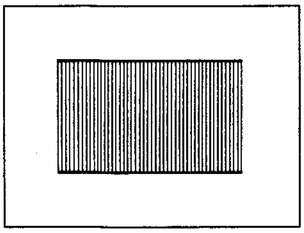
WF1



REC/PB 2.2 Vp-p

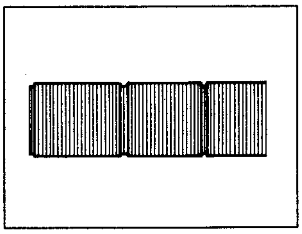
— VIDEO —

WF1 REC FM



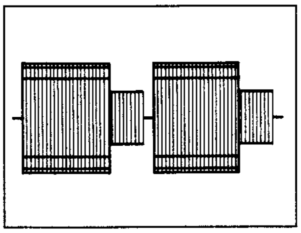
REC 0.25 Vp-p

WF2 PB FM



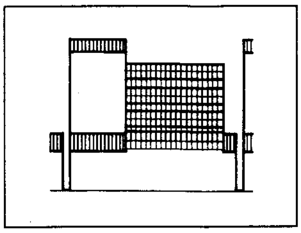
PB 0.48 Vp-p

WF3 REC CHROMA



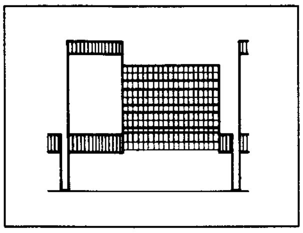
REC 0.22 Vp-p

WF4 PB Y



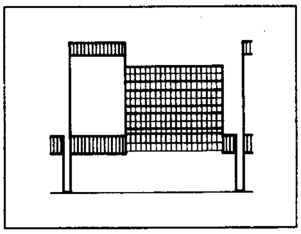
PB 1.1 Vp-p

WF5 REC Y



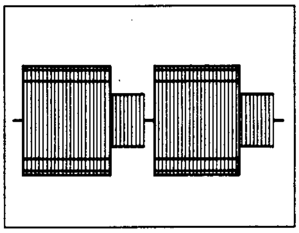
REC 1.0 Vp-p

WF6 PB Y



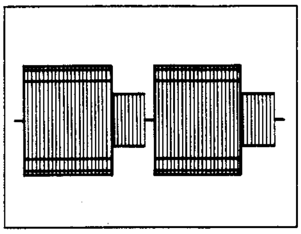
PB 0.6 Vp-p

WF7 REC COLOR



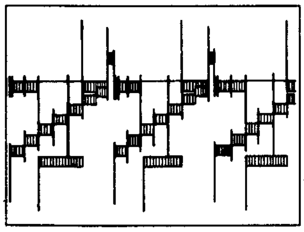
REC 0.5 Vp-p

WF8 PB COLOR



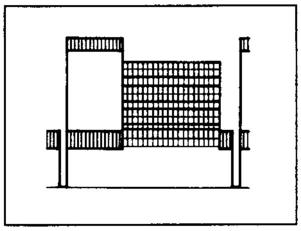
PB 0.44 Vp-p

WF9 TP4



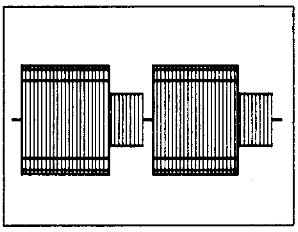
REC 0.84 Vp-p

WF10 TP25



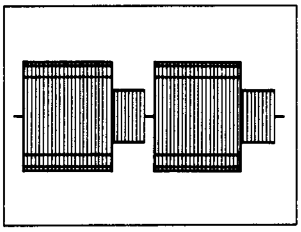
REC/PB 0.44 Vp-p

WF11 TP151



REC 0.4 Vp-p
PB 0.5 Vp-p

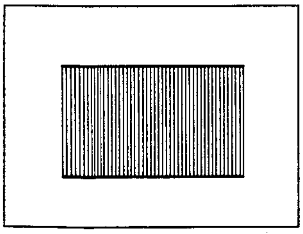
WF12



REC 0.2 Vp-p
PB 0.3 Vp-p

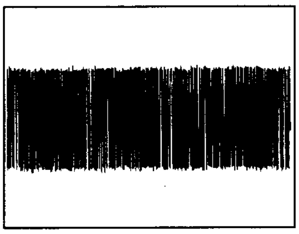
— FMA PRE/REC —

WF1 REC FM



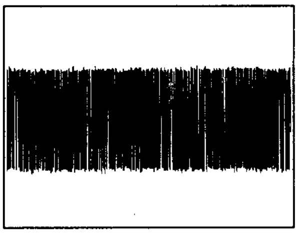
REC 0.5 Vp-p

WF2 PB FM



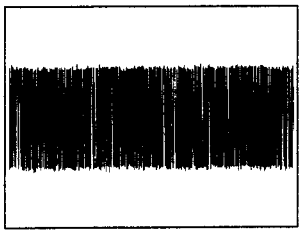
PB 0.4 Vp-p

WF3 TP54



REC 0.15 Vp-p

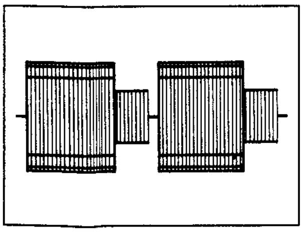
WF4 TP53



PB 0.1 Vp-p

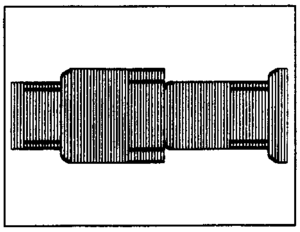
— REC —

WF1 REC COLOR



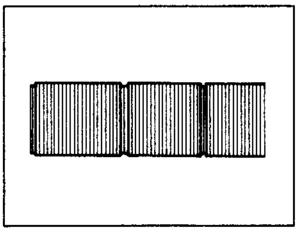
REC 0.2 Vp-p

WF2



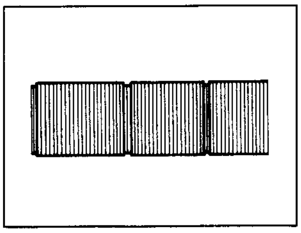
PB 0.6 Vp-p

WF3 REC FM



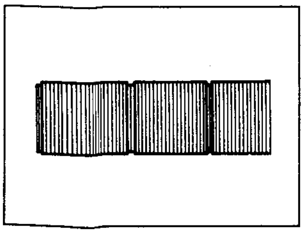
REC 0.2 Vp-p

WF4 PB FM



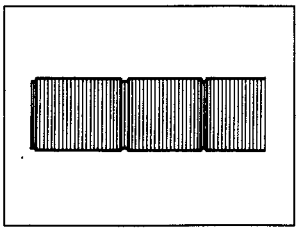
PB 0.4Vp-p

WF5 PB FM



PB 0.3 Vp-p

WF6 REC FM



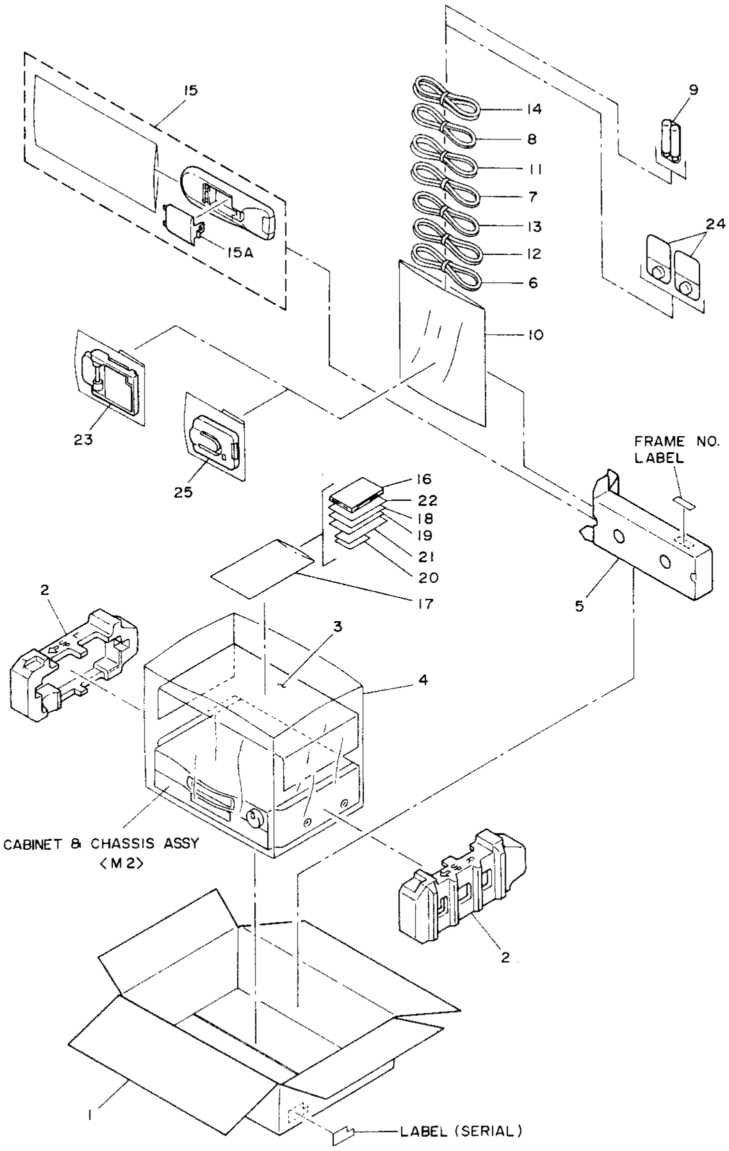
REC 0.25 Vp-p

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



****

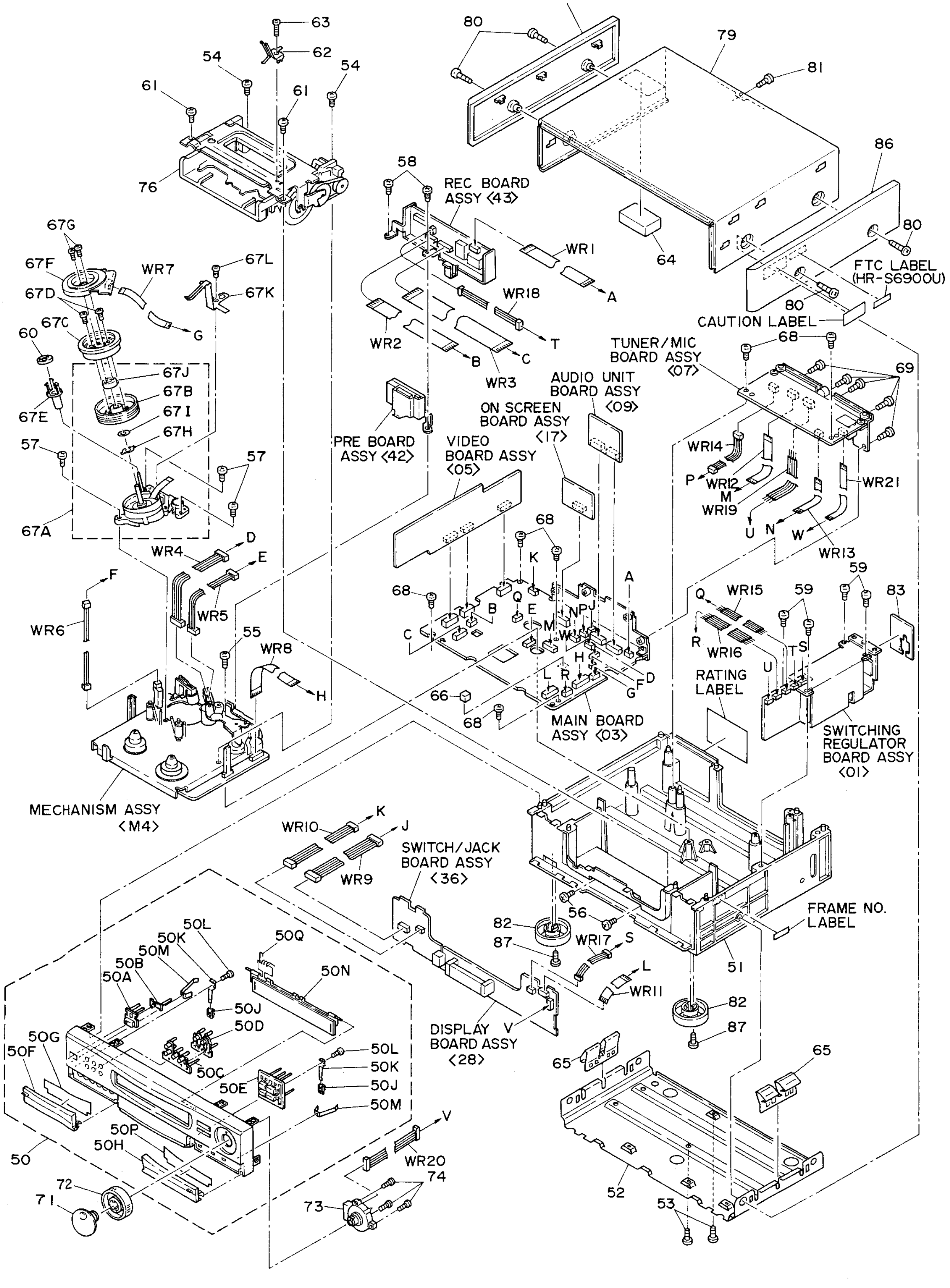
PACKING ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ34774	PACKING CASE,HR-S4900U
		PQ34865	PACKING CASE,HR-S6900U
	2	PQ34700A-2	CUSHION ASSEMBLY,HR-S6900U
		PQ34743A-2	CUSHION ASSEMBLY,HR-S4900U
	3	PQ41026-33	PROTECT SHEET,HR-S4900U
		PQ34189-8	WADDING PAPER,HR-S6900U
	4	PQM30021-82	POLY BAG
	5	PQ34715	CASE(ACCESSORY)
	6	PU59168-5	RF CABLE
	7	PU60111	S CABLE
	8	PEAC0135	PIN CORD
	9	R6PRPA-2ST	BATTERY,X2
	10	QPGA020-02005	POLY BAG
	11	PEAC0262	PIN CORD
	12	PU56142-3	PIN CORD ASSY
	13	PU59205-3	PIN JACK CABLE
⚠	14	QMP14H0-183B	POWER CORD
⚠	15	PQ11374D	REMOTE CONTROLLER,HR-S6900U
⚠		PQ11533B	REMOTE CONTROLLER,HR-S4900U
	15A	PQ34388	CAP(BATTERY),HR-S6900U
		PQ46061-2	CAP(BATTERY),HR-S4900U
⚠	16	PU30425-1372	INSTRUCTIONS,HR-S6900U
⚠		PU30425-1371	INSTRUCTIONS,HR-S4900U
	17	QPGA025-03505	POLY BAG
	18	BT-51005-1	WARRANTY INF.
	19	PU61420	SHEET(RF SW)
	20	BT-51006-1	REGIST.CARD
⚠	21	PU33941-3-3	SAFETY CAUTION
	22	PU36560	CONECTION SHEET
⚠	23	PQ34817A	REMOTE CONTROLLER(CABLE TV)
⚠	24	YU40547	BATTERY,S4900U X1 S6900U X2
⚠	25	PQ34835A-2	REMOTE CONTROLLER (RA EDIT), HR-S6900U

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



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76
58
REC BOARD ASSY <43>
86
80
64
WR1
A
FTC LABEL (HR-S6900U)
80
CAUTION LABEL
67G
67F
WR7
67L
67K
67D
WR18
G
67C
60
WR2
T
B
C
68
68
TUNER/MIC BOARD ASSY <07>
69
67J
67B
67I
67H
67E
WR3
AUDIO UNIT BOARD ASSY <09>
ON SCREEN BOARD ASSY <17>
57
57
PRE BOARD ASSY <42>
VIDEO BOARD ASSY <05>
WR14
P
WR12
M
WR19
WR21
U
N
W
WR13
67A
68
D
WR4
E
K
F
WR5
A
68
C
B
Q
E
M
N
P
J
W
WR6
55
WR8
H
L
R
H
D
G
F
59
WR15
59
83
Q
R
WR16
T
S
U
RATING LABEL
SWITCHING REGULATOR BOARD ASSY <01>
66
68
MAIN BOARD ASSY <03>
MECHANISM ASSY <M4>
WR10
K
J
SWITCH/JACK BOARD ASSY <36>
WR9
56
82
87
WR17
S
FRAME NO. LABEL
51
L
WR11
82
87
50L
50K
50M
50B
50A
50Q
50N
50J
50D
50G
50F
50C
50E
50L
50K
50J
50M
DISPLAY BOARD ASSY <28>
V
65
65
V
WR20
74
50P
50H
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72
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73
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53

#△	REF No.	PART No.	PART NAME, DESCRIPTION

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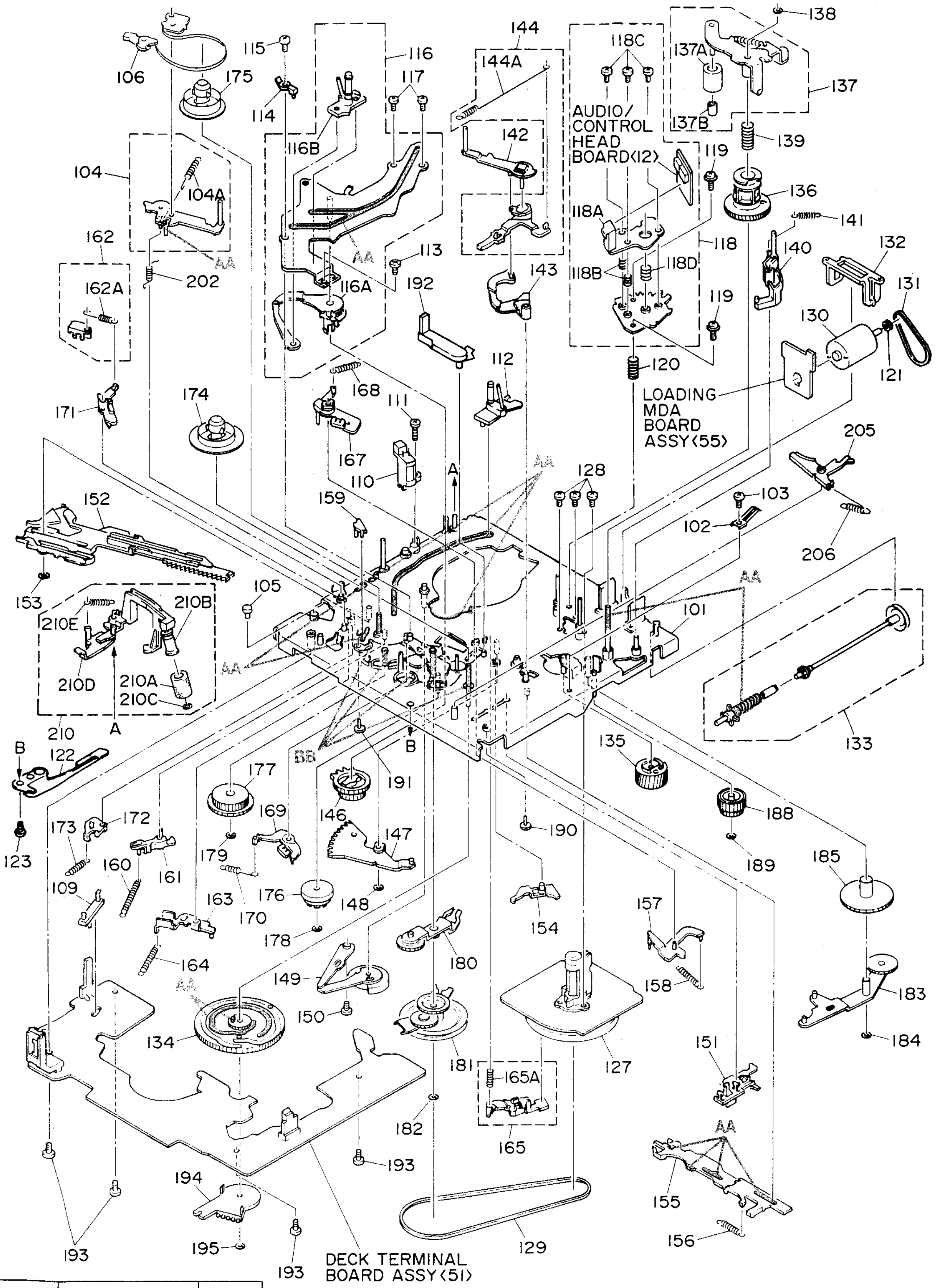
CABINET ASSEMBLY <M2>

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	50	PQ11531A-2	FRONT PANEL ASSY,HR-S4900U
		PQ11531B	FRONT PANEL ASSY,HR-S6900U
	50A	PQ34725	BUTTON(POWER)
	50B	PQ46050	INDICATOR
	50C	PQ21549	BUTTON(1)
	50D	PQ21550	BUTTON(2)
	50E	PQ21559	BUTTON(OPE)
	50F	PQ21547	DOOR(L),HR-S4900U
		PQ21547-2	DOOR(L),HR-S6900U
	50G	PQ34734	PLATE(DOOR L)
	50H	PQ21548	DOOR(R)
	50J	PQ46167	SPRING(2),X2
	50K	PQ46166	SPRING(1),X2
	50L	SDSF2005Z	SCREW,X2
	50M	PQ34736	EARTH PLATE,X2
	50N	PQ21560	CASSETTE DOOR
	50P	PQ34735-1-2	PLATE(DOOR R)
	50Q	45704	TORSION SPRING
△	51	PQ11479-2-5	BOTTOM CHASSIS
△	52	PQ11488-1-3	BOTTOM COVER
	53	SDSF3010Z	SCREW,X2 BOTTOM COVER
	54	SDST2610Z	SCREW,X2 CASSETTE HOUSING
	55	PQ43831	SPECIAL SCREW,MECH ASSY
	56	SDST4010Z	SCREW,X2 MECH ASSY
	57	SDST2612Z	SCREW,X3 DRUM
	58	SDSG2606Z	SCREW,X2 REC
	59	SDSF3010Z	SCREW,X4 SW REG
	60	PQ45339-2-3	INERTIA PLATE
	61	SDSF3008Z	SCREW,X2 CASSETTE HOUSING
	62	PQ46083	EARTH PLATE,CASSETTE HOUSING
	63	SPST2604Z	SCREW,CASSETTE HOUSING
	64	PQM30029-199-10	SPACER,TOP COVER
	65	PQ34795	EARTH PLATE,X2 BOTTOM COVER
	66	PQM30029-205	SPACER
	67A	PDM2247A	DRUM SUB ASSY
	67B	PDM3353N	UPPER DRUM ASSY
	67C	PDZ0136	ROTOR ASSY
	67D	SPSH2660Z	SCREW,X2
	67E	PDM4300A-3	I.D.ROLLER ASSY
△	67F	PDZ0119-5	STATOR ASSY
	67G	SPSP2606Z	SCREW,X2
	67H	PDM4314A-2	BRUSH ASSEMBLY
	67I	PDM4050-9	WASHER
	67J	PDM4332A	COLLAR ASSY
	67K	PDM3372	EARTH PLATE
	67L	SPSG2606Z	SCREW
	68	SDSF3010Z	SCREW,X6 MAIN TUNER
	69	SDSF3010M	SCREW,X5 TERMINAL
	71	PQ34858A	KNOB(JOG)ASSY,HR-S4900U
		PQ34858B	KNOB(JOG)ASSY,HR-S6900U
	72	PQ34698-1-2	KNOB(SHUTTLE),HR-S4900U
		PQ34698-2	KNOB(SHUTTLE),HR-S6900U

#△	REF No.	PART No.	PART NAME, DESCRIPTION
	73	PEME0757-03	JOG SHUTTLE ASSY
	74	SDSF2608Z	SCREW,X3
	76	PUS29662A-3	CASSETTE HOUSING ASSEMBLY
△	79	PQ11487-3-4	TOP COVER,HR-S4900U
△		PQ11487-4-4	TOP COVER,HR-S6900U
	80	PQ43827	SP SCREW,X4 T COVER S4900U
		PQ43930	SP SCREW,X4 T COVER S6900U
	81	SDSF3010M	SCREW,TOP COVER
	82	PQ45976C	FOOT ASSEMBLY,X2
△	83	PQ34613-2	SHEET(BRACKET)
	85	PQ11516-2	SIDE PANEL(L),HR-S6900U
	86	PQ11517-2	SIDE PANEL(R),HR-S6900U
	87	SDSF3010Z	SCREW,X2 FOOT ASSY
	WR1	PW30802-0818	FFC WIRE,CN1
	WR2	PW30804-0928	FFC WIRE,CN301
	WR3	PW30804-1534	FFC WIRE,CN302
	WR4	PW30504-04W2407	WIRE,CN101
	WR5	PW30504-03W3601	WIRE,CN401
	WR6	PW30504-02W5201	WIRE,CN102
	WR7	PW30803-0450	FFC WIRE,CN402
	WR8	PW30802-1626	FFC WIRE,CN601
	WR9	PW30504-03W6405	WIRE,CN3
	WR10	PW30504-06W5205	WIRE,CN201
	WR11	PW30802-1136	FFC WIRE,CN701
	WR12	PW30802-0818	FFC WIRE,CN603
	WR13	PW30803-0524	FFC WIRE,CN4
	WR14	PW30218-0332013	WIRE,CN5
	WR15	PW30603-04448	WIRE,REG CN3
	WR16	PW30603-05D22	RIBBON JUMPER,REG CN5
	WR17	PW30603-04936	RIBBON JUMPER,REG CN1
	WR18	PW30349-0334411	WIRE,REG CN2
	WR19	PW30604-04347	WIRE,CN4
	WR20	PW30218-07708	WIRE,JOG
	WR21	PW30803-0426	FFC WIRE,CN2 HR-S6900U

5.3 MECHANISM ASSEMBLY <M4>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144A
118C
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137A
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137B
139
114
116B
104
104A
AA
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AUDIO/
CONTROL
HEAD
BOARD<12>
119
136
141
118A
118
162
113
143
118B
118D
132
162A
202
116A
192
140
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112
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121
LOADING
MDA
BOARD
ASSY<55>
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210B
210E
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210A
210C
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A
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122
135
BB
191
B
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134
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184
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165A
127
182
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129
156
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193
DECK TERMINAL
BOARD ASSY<51>

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

⚠ REF No.	PART No.	PART NAME, DESCRIPTION
101	PQ11473B-4	MAIN DECK ASSY
102	PQ43849	EARTH PLATE
103	SPST2604Z	SCREW
104	PQ45887A-2	TENSION ARM ASSY
104A	PQ45373-1-3	TENSION SPRING
105	PQ45374-1-2	ADJUST PIN
106	PQ34629A	TENSION BAND ASSY
109	PQ34631	SPRING BASE
110	PEHE0287	FULL ERASE HEAD
111	SDSF2614Z	SCREW
112	PQ34749A-1	POLE BASE ASSY(SUPPLY)
113	SDST2608Z	SCREW
114	PQ45444	STOPPER
115	SPSF2006Z	SCREW
116	PQ34619A-1	LOADING ASSY(TAKE UP)
116A	PQ45286D-3	SPRING STAY ASSY
116B	PQ34756A	POLE BASE ASSY(TAKE UP)
117	SDSF2608Z	SCREW,X2
118	PQ45355C	AC HEAD ARM ASSEMBLY
118A	PEHE0262	AC HEAD
118B	PQM30002-192	COMPRESSION SPRING,X2
118C	PQ43687A	SPECIAL SCREW,X3
118D	PQM30002-211	COMPRESSION SPRING
119	SPSF2608M	SCREW,X2
120	PQM30002-216	COMPRESSION SPRING
121	PQ43546-1-2	MOTOR PULLEY
122	PQ46099	CAPSTAN BRACKET
123	SDST2606Z	SCREW
127	PU61313	CAPSTAN MOTOR
128	SPSG2608Z	SCREW,X3
129	PQM30003-27	BELT(CAPSTAN MOTOR)
130	PU60628-2	LOADING MOTOR
131	PQM30003-28-14	BELT(MODE MOTOR)
132	PQ34025	MOTOR HOLDER
133	PQ45917A-1	WORM CLUTCH ASSY
134	PQ11468-1-3	CONTROL CAM
135	PQ34630	RELAY CAM
136	PQ21481	PINCH ROLLER CAM
137	PQ45921A-6	PINCH ROLLER ARM ASSY
137A	PQ42007C-2	PINCH ROLLER ASSY
137B	PQ43566	PINCH ROLLER CAP
138	PQM30017-12	SLIT WASHER
139	PQM30002-223	COMPRESSION SPRING
140	PQ34564	PINCH ROLLER LEVER
141	PQM30001-371-92	TENSION SPRING
142	PQ45924A-3	GUIDE ARM ASSY
143	PQ34566-1-2	ARM LEVER
144	PQ45925A-1	SUB BRAKE ASSY(TAKE UP)
144A	PQ45926-1-2	TENSION SPRING
146	PQ34033	LOADING GEAR(TAKE UP)
147	PQ46217A	ARM GEAR
148	PQM30017-30	SLIT WASHER

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
149	PQ45298C	LOADING GEAR ASSY(SUPPLY)
150	PQ45913	SPECIAL SCREW
151	PQ45399A-3	SLIDING BASE ASSY
152	PQ11469-1-5	CONTROL PLATE
153	PQM30017-45	SLIT WASHER
154	PQ45402	RESET LEVER
155	PQ21482-1-4	SLIDE PLATE
156	PQM30001-377	TENSION SPRING
157	PQ34569-1-3	I.CANCEL LEVER
158	PQM30001-331-72	TENSION SPRING
159	PQ34570-1-2	TAKE UP HEAD
160	PQ46024	TENSION SPRING
161	PQ34571-1-2	T-UP LEVER
162	PQ45929A-3	SLIDER ASSY
162A	PQ46003-1-5	TENSION SPRING
163	PQ34572	REVERSE TENSION LEVER
164	PQM30001-343-78	TENSION SPRING
165	PQ45930A-3	CAPSTAN BRAKE ASSY
165A	PQM30001-378	TENSION SPRING
167	PQ45932B	M.BRAKE(T) ASSY
168	PQM30001-331-72	TENSION SPRING
169	PQ45933A	MAIN BRAKE ASSY(SUPPLY)
170	PQM30001-374	TENSION SPRING
171	PQ34574	SUB BRAKE(SUPPLY)
172	PQ45934-1-1	OFF LEVER
173	PQM30001-347-74	TENSION SPRING
174	PQ45935B	REEL DISK ASSY(TAKE UP)
175	PQ45524A-4	REEL DISK ASSY(SUPPLY)
176	PU61388	CLUTCH GEAR UNIT(TAKE UP)
177	PU61389	CLUTCH GEAR UNIT(SUPPLY)
178	PQM30017-7	SLIT WASHER
179	PQM30017-7	SLIT WASHER
180	PU61390	IDLER UNIT (D)
181	PU61317-1-3	CENTER GEAR UNIT
182	PQM30017-30	SLIT WASHER
183	PQ45943A-1	DRIVE ARM ASSY
184	PQM30017-47	SLIT WASHER
185	PQ45945	RELAY GEAR
188	PQ45434	CASSETTE HOUSING GEAR
189	PQM30017-47	SLIT WASHER
190	PQ45439	S SWITCH PIN (S CASSETTE DET)
191	PQ45981	C.SWITCH PIN
192	PQ21488	LED GUIDE
193	SDSF2608Z	SCREW,X4
194	PU61322-1-2	ROTARY ENCODER
195	PQM30017-40	SLIT WASHER
202	PQ45768-1-3	TORSION SPRING (TENSION ARM)
205	PQ45927A-1	SUB BRAKE ASSY(TAKE UP 2)
206	PQM30001-376	TENSION SPRING
210	PQ45561A-2	CLEANER ASSEMBLY
210A	PQ44837-2	CLEANER
210B	PQ45689	ROLLER
210C	PQM30017-38	SLIT WASHER
210D	PQ34047-1-2	LIMITTER LEVER
210E	PQM30001-323	TENSION SPRING

5.4 ELECTRICAL PARTS LIST

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SWITCHING REGULATOR BOARD ASSEMBLY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB20625B	SWITCH REGULATOR BOARD ASSY	
	IC2	BA10324A	IC	
		or LM324N	IC	
	IC3	XRA10358	IC	
		or LM358N	IC	
		or BA10358	IC	
	Q1	2SC4161(MN)-CB7	TRANSISTOR	
	Q2	2SC3616(LK)	TRANSISTOR	
	Q3	2SC3616(MLK)	TRANSISTOR	
	Q4	2SD1913(RS)	TRANSISTOR	
		or 2SD2061(EF)	TRANSISTOR	
		or 2SD2375(QP)	TRANSISTOR	
	Q5	2SD1913(RS)	TRANSISTOR	
		or 2SD2061(EF)	TRANSISTOR	
		or 2SD2375(QP)	TRANSISTOR	
	Q7	DTA114ES	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	11ES2	DIODE	
	D6	AG01	FR DIODE	
	D7	1SS133	DIODE	
	D8	AU01Z	FR DIODE	
	D9	1SS133	DIODE	
	D10	RD18ES-T1B1	ZENER DIODE	
	D11	AK04	DIODE	
	D12	1SR153-200-T2	FR DIODE	
	D14	MA644	FR DIODE	
	D15	FMB-24	BARRIER DIODE	
	D16	1SR153-200-T2	FR DIODE	
	D17	RD6.2ES-T1B1	ZENER DIODE	
	D18	1SS133	DIODE	
	D19	1SS133	DIODE	
	D20	1SS133	DIODE	
	D21	1SS133	DIODE	
	D22	MTZ30AT-77	ZENER DIODE	
	D23	RD5.1ES-T1B3	ZENER DIODE	
	D26	1SS133	DIODE	
	D27	1SS133	DIODE	
	D30	11ES2	DIODE	
	D32	RD5.1ES-T1B3	ZENER DIODE	
	D34	HZ22CP	ZENER DIODE	
	D40	MTZ10AT-77	ZENER DIODE	
	D41	1SS133	DIODE	
	D42	AU01Z	FR DIODE	
⚠	R1	QRC122K-225E	RESISTOR	2.2MΩ,1/2W
	R2	QRM025K-1R0	MP RESISTOR	1Ω,2W
	R3	QRD161J-823	RESISTOR	82KΩ,1/6W
	R4	QRD161J-823	RESISTOR	82KΩ,1/6W
	R5	QRD161J-473	RESISTOR	47KΩ,1/6W
	R6	QRG032J-683	OMF RESISTOR	68KΩ,3W
	R8	QRG032J-151	OMF RESISTOR	150Ω,3W
	R9	QRX014J-R33Z	MF RESISTOR	0.33Ω,1W
	R10	QRD161J-821	RESISTOR	820Ω,1/6W
	R11	QRD161J-122	RESISTOR	1.2KΩ,1/6W
	R12	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R13	QRD161J-103	RESISTOR	10KΩ,1/6W
	R14	QRD161J-561	RESISTOR	560Ω,1/6W
	R15	QRG02DJ-7R5X	OMF RESISTOR	7.5Ω,2W
	R16	QRG02DJ-222X	OMF RESISTOR	2.2KΩ,2W
⚠	R17	QRZ0077-101X	FUSIBLE RESISTOR	100Ω,1/4W
	R18	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R19	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R20	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R21	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R22	QRD161J-393	RESISTOR	39KΩ,1/6W
	R23	QRD161J-681	RESISTOR	680Ω,1/6W
	R24	QRD161J-823	RESISTOR	82KΩ,1/6W
	R25	QRD161J-103	RESISTOR	10KΩ,1/6W
	R26	QRD161J-102	RESISTOR	1KΩ,1/6W
	R27	QRD161J-823	RESISTOR	82KΩ,1/6W
	R28	QRD161J-122	RESISTOR	1.2KΩ,1/6W
	R29	QRD161J-333	RESISTOR	33KΩ,1/6W
	R30	QRD161J-103	RESISTOR	10KΩ,1/6W
	R31	QRD161J-103	RESISTOR	10KΩ,1/6W
	R33	QRD161J-274	RESISTOR	270KΩ,1/6W
	R34	QVPA606-332Z	V RESISTOR,SWD 5V	
	R35	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R36	QRV144F-8451AY	CMF RESISTOR	8.45KΩ,1/4W
	R37	QRV144F-1022AY	CMF RESISTOR	10.2KΩ,1/4W
	R39	QRD161J-103	RESISTOR	10KΩ,1/6W
	R40	QRD161J-102	RESISTOR	1KΩ,1/6W
	R49	QRD161J-221	RESISTOR	220Ω,1/6W
	R51	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R52	QRD161J-103	RESISTOR	10KΩ,1/6W
	R53	QRD161J-102	RESISTOR	1KΩ,1/6W
⚠	R54	QRZ0077-220X	FUSIBLE RESISTOR	22Ω,1/4W
	R55	QRD161J-102	RESISTOR	1KΩ,1/6W
	R56	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R57	QRD161J-103	RESISTOR	10KΩ,1/6W
	R58	QRD161J-681	RESISTOR	680Ω,1/6W
	R59	QRG02DJ-7R5X	OMF RESISTOR	7.5Ω,2W
⚠	C1	QFZ9022-683	F CAPACITOR	0.068μF
⚠	C5	QCZ9016-470J	CAPACITOR	47pF
⚠	C6	QCZ9016-470J	CAPACITOR	47pF
⚠	C7	QCZ9052-332	CAPACITOR	0.0033μF
	C9	QCZ0212-472	CAPACITOR	0.0047μF,1KV
	C10	QCZ0136-331Z	CAPACITOR	330pF
	C11	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C12	QETM2DM-107R	E CAPACITOR	100μF,200V
	C14	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C15	QFV11HJ-824	F CAPACITOR	0.82μF,50V
	C16	QCSB1HJ-560	CAPACITOR	56pF,50V
	C21	QEGB1AM-107	E CAPACITOR	100μF,10V
	C22	QETC1JM-226	E CAPACITOR	22μF,63V
	C23	QEGB1EM-227	E CAPACITOR	220μF,25V
	C24	QEGB1CM-687	E CAPACITOR	680μF,16V
	C25	QEGB1AM-108	E CAPACITOR	1000μF,10V
	C26	QETC1VM-336	E CAPACITOR	33μF,35V
	C27	QFV11HJ-563	F CAPACITOR	0.056μF,50V
	C29	QFV11HJ-274	F CAPACITOR	0.27μF,50V
	C30	QFV11HJ-104	F CAPACITOR	0.1μF,50V
	C31	QETC1EM-227	E CAPACITOR	220μF,25V
	C32	QETB1CM-108	E CAPACITOR	1000μF,16V
	C33	QETB1AM-108	E CAPACITOR	1000μF,10V
	C34	QETC1VM-336	E CAPACITOR	33μF,35V
	C35	QETC1CM-107	E CAPACITOR	100μF,16V
	C36	QETC0JM-107	E CAPACITOR	100μF,6.3V

⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C37	QETC1CM-106	E CAPACITOR	10μF,16V
	C42	QFLA1HJ-102Z	M CAPACITOR	0.001μF,50V
	C43	QFLA1HJ-102Z	M CAPACITOR	0.001μF,50V
	C44	QETC1EM-476	E CAPACITOR	47μF,25V
	C45	QETC1CM-106	E CAPACITOR	10μF,16V
	C46	QETC1EM-476	E CAPACITOR	47μF,25V
	C47	QETC1CM-106	E CAPACITOR	10μF,16V
	L1	PELN0696-330KZ	COIL	33μH
	L2	PELN0696-330KZ	COIL	33μH
	L3	PELN0696-330KZ	COIL	33μH
⚠	PC1	PS2501-1	PHOTO COUPLER	
⚠	PC2	PS2501-1	PHOTO COUPLER	
⚠	T1	PELN0823	SW TRANS	
⚠	BKT1	PQ46004	BRACKET,REG	
	ETH1	PQ44695	EARTH PLATE	
	ETH2	PQ46081-1-1	EARTH PLATE	
⚠	FC1	PEMC0965-Z	FUSE CLIP	
⚠	FC2	PEMC0965-Z	FUSE CLIP	
⚠	HS1	PQ46005	HEAT SINK(1),Q1	
⚠	HS2	PQ46006	HEAT SINK(2),D14 D15 Q4 Q5	
	HS3	PQ46048	PLATE,X3 REG Q4 Q5 D15	
⚠	LF1	PU61092	LINE FILTER	
	SCW1	SDST3006Z	SCREW,X4	
	SCW2	SDST3008Z	SCREW,X4	
	SCW3	SPSG3008M	SCREW,X2	
	SLD1	PQ21503-1-2	SHIELD CASE,REG	
	SLD2	PQ34638	SHIELD COVER,REG	
	SPC1	PU60010-2	SPACER	
	CN1	PU60910-104	WIRE TRAP	
	CN2	PU59555-103	CONNECTOR	
	CN3	PU60910-104	WIRE TRAP	
	CN4	PU60910-104	WIRE TRAP	
	CN5	PU60910-105	CONNECTOR	
⚠	CN101	PEMC0973-02	AC INLET	
⚠	F1	QMF51N2-1R0J1	FUSE	T1.0A

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MAIN BOARD ASSEMBLY <03>

	PWBA1	PB10747A-01	MAIN BOARD ASSEMBLY,HR-S6900U
		PB10747B-01	MAIN BOARD ASSEMBLY,HR-S4900U
	CL1	PU59311-4	WIRE CLAMP,X3
	JA1	PEMC0864-02	S JACK,S IN
	JA2	PEMC0864	S JACK,S OUT
	JA3	PEMC0893-04	PIN JACK,V IN
	JA4	PU60833-4	PIN JACK,V OUT
	JA5	PEMC0893-02	PIN JACK,A IN(R)
	JA6	PEMC0893-03	PIN JACK,A IN(L)
	JA7	PU60833-2	PIN JACK,A OUT(R)
	JA8	PU60833-3	PIN JACK,A OUT(L)
	JA9	PU61012	MINI JACK,R.A.EDIT
	SCW1	SDSF3010Z	SCREW,X2
	SLD1	PU61069-1-2	SHIELD CASE
	SLD2	PU61070	SHIELD COVER
	SLD3	PU61071	SHIELD PLATE
⚠	TB1	PQ11491-2	TERMINAL BOARD (1)
	JA10	PU61012	MINI JACK,COMPULINK

- FMA AUDIO SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC1	XRA15218N	IC	
	IC3	BA6138	IC	
	IC4	XRA15218	IC	
	Q1	2SC3311A	TRANSISTOR	
	Q2	2SC3311A	TRANSISTOR	
	Q3	2SC4081(RS)	TRANSISTOR	
	Q4	2SC4081(RS)	TRANSISTOR	
	Q5	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(YG)-TJK	TRANSISTOR	
	Q6	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(YG)-TJK	TRANSISTOR	
	Q7	DTA114EU	TRANSISTOR	
	D2	MTZ12CT-77	ZENER DIODE	
	R1	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R2	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R3	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R4	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R5	QRD161J-393	RESISTOR	39KΩ,1/6W
	R6	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R7	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R8	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R9	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R10	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R11	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R12	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R13	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R14	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R15	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R16	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R17	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R18	QRD161J-102	RESISTOR	1KΩ,1/6W
	R19	QRD161J-102	RESISTOR	1KΩ,1/6W
	R20	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R21	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R22	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R23	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R24	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R25	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R26	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R27	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R28	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R29	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R30	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R31	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R32	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R33	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R34	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R35	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R36	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R37	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R38	QRD161J-331	RESISTOR	330Ω,1/6W
	R39	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R50	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R51	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R52	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R53	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R54	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R55	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R56	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R57	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R60	QRD161J-104	RESISTOR	100KΩ,1/6W
R61	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R62	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R63	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R64	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R65	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R66	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R67	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R68	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R69	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
C1	QETC1CM-476	E CAPACITOR	47μF,16V
C2	QETC1AM-476	E CAPACITOR	47μF,10V
C4	QETC1CM-106	E CAPACITOR	10μF,16V
C5	QETC1CM-106	E CAPACITOR	10μF,16V
C6	QETC1CM-106	E CAPACITOR	10μF,16V
C7	QETC1CM-106	E CAPACITOR	10μF,16V
C9	QETC1AM-476	E CAPACITOR	47μF,10V
C10	QETC1AM-476	E CAPACITOR	47μF,10V
C16	QCYA1HK-102	CAPACITOR	0.001μF,50V
C17	QCYA1HK-102	CAPACITOR	0.001μF,50V
C18	QETC1AM-476	E CAPACITOR	47μF,10V
C20	QETC1HM-105	E CAPACITOR	1μF,50V
C21	QETC1HM-225	E CAPACITOR	2.2μF,50V
C22	QETC1HM-225	E CAPACITOR	2.2μF,50V
C23	QETC1AM-107	E CAPACITOR	100μF,10V
C24	QETC1AM-107	E CAPACITOR	100μF,10V
C25	QETC1HM-225	E CAPACITOR	2.2μF,50V
C26	QETC1HM-225	E CAPACITOR	2.2μF,50V
C27	QETC1HM-105	E CAPACITOR	1μF,50V
C29	QETC1AM-476	E CAPACITOR	47μF,10V
C30	QETC1CM-476	E CAPACITOR	47μF,16V
C39	QETC1CM-475	E CAPACITOR	4.7μF,16V
C40	QETC1CM-475	E CAPACITOR	4.7μF,16V
C41	QETC1CM-476	E CAPACITOR	47μF,16V
C42	QETC1CM-106	E CAPACITOR	10μF,16V
C43	QETC1CM-106	E CAPACITOR	10μF,16V
C44	QETC1CM-106	E CAPACITOR	10μF,16V
C45	QETC1CM-106	E CAPACITOR	10μF,16V
C46	QETC1CM-106	E CAPACITOR	10μF,16V
C47	QETC1CM-106	E CAPACITOR	10μF,16V
L1	PELN0530-101JZ	COIL	100μH
CN1	PEMC0915-008	FFC CONNECTOR	
CN2	PEMC0915-004	FFC CONNECTOR,HR-S6900U	
CN3	PU59555-3	CONNECTOR	
CN4	PEMC0915-005	FFC CONNECTOR	
CN5	PU59555-3	CONNECTOR	

- NORM AUDIO SECTION -

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
IC101	LA7295	IC	
Q101	DTC114WU	TRANSISTOR	
Q102	DTC114WU	TRANSISTOR	
Q103	DTC114WU	TRANSISTOR	
Q104	DTA114EU	TRANSISTOR	
Q105	DTA114EU	TRANSISTOR	
Q106	2SC4081(RS)	TRANSISTOR	
Q107	2SC4081(RS)	TRANSISTOR	
Q108	DTA144ES	TRANSISTOR	
D101	DAN202U	DIODE	
D102	DAN202U	DIODE	
D103	1SS133	DIODE	
D104	1SS133	DIODE	
R101	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R102	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R103	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R104	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R105	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
R106	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R107	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R108	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R109	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R110	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R111	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R112	QRD161J-103	RESISTOR	10KΩ,1/6W
R113	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R114	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R115	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R116	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R117	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R118	QRSA08J-330YN	RESISTOR	33Ω,1/10W
R119	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R120	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R121	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R122	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R123	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R124	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R125	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R126	QRD161J-223	RESISTOR	22KΩ,1/6W
R127	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R128	QRD161J-100	RESISTOR	10Ω,1/6W
R129	QVPA606-473Z	V RESISTOR,BIAS	
R130	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
R131	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R132	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R133	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R134	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R135	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R136	QRSA08J-6R8YN	RESISTOR	6.8Ω,1/10W
R137	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C101	QCYA1HK-223	CAPACITOR	0.022μF,50V
C102	QCSA1HJ-821	CAPACITOR	820pF,50V
C103	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C104	QETC1HM-334	E CAPACITOR	0.33μF,50V
C105	PU60550-105	E CAPACITOR	1μF
C106	QETC1CM-106	E CAPACITOR	10μF,16V
C107	QFLC1HJ-123Z	M CAPACITOR	0.012μF,50V
C108	QETC1HM-105	E CAPACITOR	1μF,50V
C109	QETC1HM-335	E CAPACITOR	3.3μF,50V
C110	QFLC1HJ-822Z	M CAPACITOR	0.0082μF,50V
C111	QFLC1HJ-393Z	M CAPACITOR	0.039μF,50V
C112	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C113	QFLC1HJ-183Z	M CAPACITOR	0.018μF,50V
C114	QETC1HM-105	E CAPACITOR	1μF,50V
C115	QFLC1HJ-153Z	M CAPACITOR	0.015μF,50V
C116	QETC1CM-476	E CAPACITOR	47μF,16V
C117	QETC1CM-106	E CAPACITOR	10μF,16V
C118	QCYA1HK-102	CAPACITOR	0.001μF,50V
C119	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C120	QETC1CM-106	E CAPACITOR	10μF,16V
C121	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C122	QCSA1HJ-331	CAPACITOR	330pF,50V
C123	QCYA1HK-472	CAPACITOR	0.0047μF,50V
C124	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C125	QCYA1HK-102	CAPACITOR	0.001μF,50V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C126	QETC1CM-106	E CAPACITOR	10μF,16V
C127	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C130	QCVB1CN-103	CAPACITOR	0.01μF,16V
L101	PU58308-682J	COIL	6.8mH
T101	PU60320	OSC TRANSFORMER	
T102	PU60321	OSC TRANSFORMER	
CN101	PU59555-4	OSC TRANSFORMER,LC VCO	
CN102	PU59555-2	CONNECTOR	

- VIDEO SECTION -

⚠ REF No.	PART No.	PART NAME, DESCRIPTION
IC301	JCP0033	IC
IC302	CXL5502P	IC
IC303	MC74HC04AN	IC
	or TC74HC04AP	IC
Q203	FMW2	PAIR TRANSISTOR
Q204	FMS2	TRANSISTOR
Q205	FMS1	TRANSISTOR
Q206	FMW2	PAIR TRANSISTOR
Q207	FMS2	TRANSISTOR
Q208	FMS1	TRANSISTOR
Q211	FMW2	PAIR TRANSISTOR
Q212	FMS2	TRANSISTOR
Q213	FMS1	TRANSISTOR
Q221	2SC1740S(QRS)	TRANSISTOR
Q230	DTC144EU	TRANSISTOR
Q232	FMS1	TRANSISTOR
Q233	DTC144ES	TRANSISTOR
Q240	2SC4081(QRS)	TRANSISTOR
Q241	2SC4081(QRS)	TRANSISTOR
Q242	2SC1740S(QRS)	TRANSISTOR
Q243	2SA933S(RS)	TRANSISTOR
Q244	2SA933S(RS)	TRANSISTOR
Q245	2SA1576(RS)	TRANSISTOR
Q246	2SC4081(QRS)	TRANSISTOR
Q248	2SC1740S(QRS)	TRANSISTOR
Q301	DTA124EU	TRANSISTOR
Q302	DTC144ES	TRANSISTOR
Q303	DTC144EU	TRANSISTOR
Q304	DTC144WS	TRANSISTOR
Q305	2SA933S(RS)	TRANSISTOR
Q306	2SC4081(QRS)	TRANSISTOR
Q307	2SC4081(QRS)	TRANSISTOR
Q308	2SC1740S(QRS)	TRANSISTOR
Q309	DTC144EU	TRANSISTOR
Q310	2SC1740S(QRS)	TRANSISTOR
Q313	DTC144WS	TRANSISTOR
Q314	DTC144WS	TRANSISTOR
Q316	2SA933S(RS)	TRANSISTOR
Q317	2SC4081(S)	TRANSISTOR
Q318	2SC1740S(S)	TRANSISTOR
Q329	DTC144WU	TRANSISTOR
D204	1SS133	DIODE
D210	1SS133	DIODE
D211	DAN202U	DIODE
D215	1SS133	DIODE
D217	1SS133	DIODE
D218	1SS133	DIODE
D219	DAP202U	DIODE
D220	1SS133	DIODE
D221	1SS133	DIODE
D301	1SS133	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D303	1SS133	DIODE	
D305	DAN202U	DIODE	
D306	1SS133	DIODE	
D313	1SS133	DIODE	
D314	1SS133	DIODE	
D316	1SS133	DIODE	
R201	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R202	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R205	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R207	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R217	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R218	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R220	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R221	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R224	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R225	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R235	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R236	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R237	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R238	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R239	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
R240	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R241	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R242	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R243	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R244	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R245	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R247	QVPA606-472Z	V RESISTOR,N PB Y LEVEL-2	
R249	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R250	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R257	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R258	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R261	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R262	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R263	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R264	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R270	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R271	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R272	QRSA08J-202YN	RESISTOR	2KΩ,1/10W
R273	NRVA62D-153N	RESISTOR	15KΩ,1/16W
R274	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R275	NRVA62D-683N	RESISTOR	68KΩ,1/16W
R276	QRSA08J-163YN	RESISTOR	16KΩ,1/10W
R280	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R281	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R283	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R284	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R285	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R286	QRD161J-101	RESISTOR	100Ω,1/6W
R291	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R292	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R301	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R302	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R303	QVPA606-103Z	V RESISTOR,EE Y LEVEL	
R304	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R305	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R306	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R307	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R308	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R309	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R310	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R311	QRSA08J-102YN	RESISTOR	1KΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R312	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R313	QRSA08J-564YN	RESISTOR	560KΩ,1/10W
R314	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R315	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R316	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R317	QRSA08J-201YN	RESISTOR	200Ω,1/10W
R318	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R319	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R320	QRD161J-152	RESISTOR	1.5KΩ,1/6W
R321	QRD161J-331	RESISTOR	330Ω,1/6W
R322	QVPA606-222Z	V RESISTOR,Y COMB PHASE	
R323	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R324	QVPA606-102Z	V RESISTOR,Y COMB GAIN	
R325	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R327	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R328	QVPA606-152Z	V RESISTOR,C COMB PHASE	
R329	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R330	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R331	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R332	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R333	QVPA606-102Z	V RESISTOR,C COMB GAIN	
R334	QRD161J-223	RESISTOR	22KΩ,1/6W
R335	QRD161J-183	RESISTOR	18KΩ,1/6W
R336	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R337	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R338	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R339	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R340	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R341	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R342	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R343	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R344	ERT-D2FGL142S	THERMISTOR	
R346	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R347	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R348	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R350	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R351	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R352	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R353	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R355	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R356	QRSA08J-202YN	RESISTOR	2KΩ,1/10W
R357	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R358	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R360	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R361	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R362	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R363	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R364	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R365	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R366	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R367	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R368	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R369	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R370	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R372	QRSA08J-202YN	RESISTOR	2KΩ,1/10W
R373	QRSA08J-823YN	RESISTOR	82KΩ,1/10W
R374	QRD161J-102	RESISTOR	1KΩ,1/6W
R375	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R376	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R377	QRD161J-473	RESISTOR	47KΩ,1/6W
R383	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
C201	QETC1CM-106	E CAPACITOR	10μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C202	QETC1CM-106	E CAPACITOR	10μF,16V
C203	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C204	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C210	QCSA1HJ-101	CAPACITOR	100pF,50V
C211	QETC1HM-225	E CAPACITOR	2.2μF,50V
C212	QCFA1HZ-223	CAPACITOR	0.022μF,50V
C213	QCFA1HZ-223	CAPACITOR	0.022μF,50V
C214	QETC0JM-107	E CAPACITOR	100μF,6.3V
C230	QETN0JM-108ZS	E CAPACITOR	1000μF,6.3V
C231	QCFA1HZ-223	CAPACITOR	0.022μF,50V
C232	QETN0JM-108ZS	E CAPACITOR	1000μF,6.3V
C233	QCFA1HZ-223	CAPACITOR	0.022μF,50V
C235	QCFA1HZ-104	CAPACITOR	0.1μF,50V
C236	QCFA1HZ-104	CAPACITOR	0.1μF,50V
C237	QCFA1HZ-223	CAPACITOR	0.022μF,50V
C238	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C239	QETC1CM-337	E CAPACITOR	330μF,16V
C242	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C248	QCSA1HJ-150	CAPACITOR	15pF,50V
C250	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C266	QETC1CM-106	E CAPACITOR	10μF,16V
C267	QCVB1CM-103	CAPACITOR	0.01μF,16V
C268	QETC1CM-106	E CAPACITOR	10μF,16V
C269	QETC1EM-476	E CAPACITOR	47μF,25V
C282	QCVB1CN-103	CAPACITOR	0.01μF,16V
C284	QCVB1CN-103	CAPACITOR	0.01μF,16V
C301	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C302	QETC1CM-106	E CAPACITOR	10μF,16V
C303	QCYA1HK-682	CAPACITOR	0.0068μF,50V
C304	QETC1HM-224	E CAPACITOR	0.22μF,50V
C305	QETC1HM-224	E CAPACITOR	0.22μF,50V
C306	QETC1CM-106	E CAPACITOR	10μF,16V
C307	QETC1HM-224	E CAPACITOR	0.22μF,50V
C308	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C309	QETC0JM-107	E CAPACITOR	100μF,6.3V
C310	QCYA1HK-103	CAPACITOR	0.01μF,50V
C311	QETC1HM-474	E CAPACITOR	0.47μF,50V
C312	QCFA1HZ-104	CAPACITOR	0.1μF,50V
C313	QETC1HM-474	E CAPACITOR	0.47μF,50V
C314	QETC1HM-474	E CAPACITOR	0.47μF,50V
C315	QETC1HM-474	E CAPACITOR	0.47μF,50V
C316	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C317	QCTA1UJ-820	CAPACITOR	82pF
C318	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C319	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C320	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C323	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C324	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C325	QETC0JM-107	E CAPACITOR	100μF,6.3V
C326	QCYA1HK-103	CAPACITOR	0.01μF,50V
C327	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C328	QCTA1CH-330	CAPACITOR	33pF,16V
C329	QCTA1CH-180	CAPACITOR	18pF,16V
C330	QCTA1CH-820	CAPACITOR	82pF,16V
C331	QCTA1CH-820	CAPACITOR	82pF,16V
C332	QCTA1CH-330	CAPACITOR	33pF,16V
C333	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C334	QCTA1CH-180	CAPACITOR	18pF,16V
C335	QCTA1CH-820	CAPACITOR	82pF,16V
C336	QCTA1CH-820	CAPACITOR	82pF,16V
C337	QCTA1CH-200	CAPACITOR	20pF,16V
C338	QCTA1CH-200	CAPACITOR	20pF,16V

△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C339	QCTA1CH-101	CAPACITOR	100pF,16V
	C343	QETC1EM-335	E CAPACITOR	3.3μF,25V
	C344	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C345	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C346	QETC1CM-336	E CAPACITOR	33μF,16V
	C347	QETC1HM-105	E CAPACITOR	1μF,50V
	C348	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C349	QCSA1HJ-101	CAPACITOR	100pF,50V
	C350	QETC1CM-106	E CAPACITOR	10μF,16V
	C351	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C352	QCSA1HJ-5R0	CAPACITOR	5pF,50V
	C353	QCSA1HJ-5R0	CAPACITOR	5pF,50V
	C354	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C355	QETC1CM-476	E CAPACITOR	47μF,16V
	C356	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C357	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C358	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C359	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	L202	PU48530-101K	COIL	100μH
	L203	PU59988-820J	COIL	82μH
	L254	PU48530-101K	COIL	100μH
	L301	PU48530-101K	COIL	100μH
	L302	PU48530-101K	COIL	100μH
	L304	PU59988-101J	COIL	100μH
	L305	PU59988-180J	COIL	18μH
	L306	PU59988-101J	COIL	100μH
	L307	PU59988-180J	COIL	18μH
	L309	PU48530-101K	COIL	100μH
	L310	PU48530-101K	COIL	100μH
	L311	PU59988-330J	COIL	33μH
	L313	PU59988-101J	COIL	100μH
	L314	PU59988-101J	COIL	100μH
	LPF302	PU61053	LOW PASS FILTER	
	LPF303	PU61052	LOW PASS FILTER	
	BPF301	PELN0893	BAND PASS FILTER	
	CN201	PU59555-6	CONNECTOR	
	CN205	PU59555-2	CONNECTOR	
	CN301	PEMC0915-009	FFC CONNECTOR	
	CN302	PEMC0915-015	FFC CONNECTOR	
	CN303	PU60910-4	CONNECTOR	
	CN304	PEMC0714-009	CONNECTOR	
	CN305	PEMC0714-010	CONNECTOR	
	CN306	PEMC0714-009	CONNECTOR	
△	CP201	ICP-N10	CIRCUIT PROTECTOR	

– SERVO SECTION –

△	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC401	HD49780NT	IC	
	IC451	BA7039	IC	
		or XRA7039	IC	
	IC471	UPD4161BC	IC	
	IC472	UPC358C	IC	
		or LM358P	IC	
		or LM358N	IC	
	IC473	MC14011BCP	IC	
	Q403	DTC143TU	TRANSISTOR	
	D401	1SS133	DIODE	
	D402	1SS133	DIODE	
	D403	1SS133	DIODE	
	D477	1SS133	DIODE	
	R401	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R402	QRSA08J-102YN	RESISTOR	1KΩ,1/10W

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	R403	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R405	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
	R406	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R407	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R409	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R410	QRSA08J-683YN	RESISTOR	68KΩ,1/10W
	R411	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R412	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R413	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R414	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R415	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R416	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R417	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R418	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R419	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R421	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
	R423	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R424	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R428	QRSA08J-824YN	RESISTOR	820KΩ,1/10W
	R429	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R430	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R431	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
	R432	QRD161J-103	RESISTOR	10KΩ,1/6W
	R436	QRD161J-102	RESISTOR	1KΩ,1/6W
	R438	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R440	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R451	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R452	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R453	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R454	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R455	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R456	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
	R485	QRD161J-273	RESISTOR	27KΩ,1/6W
	C401	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C402	QER61AM-226	E CAPACITOR	22μF,10V
	C403	QER61AM-226	E CAPACITOR	22μF,10V
	C404	QCSA1HJ-101	CAPACITOR	100pF,50V
	C405	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C406	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C407	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C408	QCYA1EK-563	CAPACITOR	0.056μF,25V
	C409	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C410	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C411	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C412	QER61CM-106	E CAPACITOR	10μF,16V
	C413	QCC31CJ-104	CAPACITOR	0.1μF,16V
	C414	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C415	QER61EM-475	E CAPACITOR	4.7μF,25V
	C416	QER61EM-475	E CAPACITOR	4.7μF,25V
	C417	QER61CM-106	E CAPACITOR	10μF,16V
	C418	QER61CM-106	E CAPACITOR	10μF,16V
	C419	QCYA1EK-473	CAPACITOR	0.047μF,25V
	C420	QENC1HM-105	NP E CAPACITOR	1μF,50V
	C421	QCSA1HJ-101	CAPACITOR	100pF,50V
	C423	QER61CM-106	E CAPACITOR	10μF,16V
	C424	QFV11HJ-103	F CAPACITOR	0.01μF,50V
	C451	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C452	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C453	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C454	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C455	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C456	QCYA1EK-103	CAPACITOR	0.01μF,25V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C457	QCYA1EK-103	CAPACITOR	0.01μF,25V
	C458	QER61AM-226	E CAPACITOR	22μF,10V
	C459	QFV11HJ-563	F CAPACITOR	0.056μF,50V
	L451	PU59152-270J	COIL	27μH
	CN401	PU59555-3	CONNECTOR	
	CN402	PEMC0915-004	FFC CONNECTOR	
⚠	CP401	ICP-N15	CIRCUIT PROTECTOR	

- SYSCON SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	HD6433927A29F	QFP IC (MCU)	
	IC602	CAT35C102P	IC	
		or S-2924AI10G	IC	
		or S-2924AI10M	IC	
	IC603	S-80728AN	IC	
	IC604	M50253P	IC	
	IC605	TC7S14F	IC	
	Q601	DTC124ES	TRANSISTOR	
	Q602	DTC114TS	TRANSISTOR	
	Q603	DTC124EU	TRANSISTOR	
	Q604	DTC124EU	TRANSISTOR	
	Q605	DTC124ES	TRANSISTOR	
	Q606	DTC124ES	TRANSISTOR	
	Q607	DTC124EU	TRANSISTOR	
	Q608	DTC124EU	TRANSISTOR	
	Q609	2SB1256	TRANSISTOR	
	Q610	2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
		or 2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
	Q611	DTC124EU	TRANSISTOR	
	Q612	DTA124EU	TRANSISTOR	
	D601	RB721Q	DIODE	
	D602	RB721Q	DIODE	
	D603	11ES2	DIODE	
	D604	11ES2	DIODE	
	D605	1SS133	DIODE	
	D606	1SS133	DIODE	
	D607	1SS133	DIODE	
	D608	1SS133	DIODE	
	D609	1SS133	DIODE	
	D610	1SR153-200-T2	FR DIODE	
	D612	1SS133	DIODE	
	D613	11ES2	DIODE	
	R601	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R602	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R603	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R604	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R605	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R606	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R607	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R608	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R611	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R612	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R613	QRD161J-102	RESISTOR	1KΩ,1/6W
	R614	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R615	QRD161J-104	RESISTOR	100KΩ,1/6W
	R617	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R618	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R621	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R623	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R624	QRD161J-472	RESISTOR	4.7KΩ,1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R625	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R627	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R628	QRD161J-102	RESISTOR	1KΩ,1/6W
	R629	QRD161J-102	RESISTOR	1KΩ,1/6W
	R630	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R631	QRD161J-471	RESISTOR	470Ω,1/6W
	R632	QRD161J-333	RESISTOR	33KΩ,1/6W
	R634	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R635	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R636	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R637	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R638	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R639	QRD161J-102	RESISTOR	1KΩ,1/6W
	R640	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R641	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R642	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R643	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R644	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R645	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R646	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R647	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R648	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R649	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R650	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R652	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R654	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R655	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R656	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R657	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R658	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R659	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R660	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R661	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R662	QRSA08J-683YN	RESISTOR	68KΩ,1/10W
	R663	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R664	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R665	QRD161J-102	RESISTOR	1KΩ,1/6W
	R666	QRD161J-224	RESISTOR	220KΩ,1/6W
	R667	QRD161J-104	RESISTOR	100KΩ,1/6W
	R668	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R670	QRSA08J-303YN	RESISTOR	30KΩ,1/10W
	R671	QRD161J-563	RESISTOR	56KΩ,1/6W
	R672	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R674	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R675	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R676	QRD161J-104	RESISTOR	100KΩ,1/6W
	R677	QRD161J-103	RESISTOR	10KΩ,1/6W
	R678	QRD161J-103	RESISTOR	10KΩ,1/6W
	R679	QRD161J-103	RESISTOR	10KΩ,1/6W
	R680	QRD161J-103	RESISTOR	10KΩ,1/6W
	R681	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R682	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R684	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R685	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R686	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R687	QRSA08J-151YN	RESISTOR	150Ω,1/10W
	R688	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R689	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R690	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R691	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	C601	QCYA1EJ-103	CAPACITOR	0.01μF,25V
	C602	QER61CM-106	E CAPACITOR	10μF,16V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C603	QCYA1EJ-103	CAPACITOR	0.01μF,25V
C605	QEK60JM-107	E CAPACITOR	100μF,6.3V
C606	QEA40HZ-104	EDL CAPACITOR	0.1F,5.5V
C607	QCYA1EJ-103	CAPACITOR	0.01μF,25V
C608	QER61EM-336	E CAPACITOR	33μF,25V
C609	QCYA1EJ-103	CAPACITOR	0.01μF,25V
C613	QCSA1HJ-101	CAPACITOR	100pF,50V
C614	QCSA1HJ-101	CAPACITOR	100pF,50V
C616	QCSA1HJ-270	CAPACITOR	27pF,50V
C618	QAT3120-450Z	TRIM CAPACITOR,TIMER CLOCK	45pF
C621	QEK61EM-476	E CAPACITOR	47μF,25V
C622	QCC11CJ-104	CAPACITOR	0.1μF,16V
C623	QCSA1HJ-470	CAPACITOR	47pF,50V
C624	QCSA1HJ-470	CAPACITOR	47pF,50V
C626	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C627	QCYA1HK-103	CAPACITOR	0.01μF,50V
C628	QCSA1HK-220	CAPACITOR	22pF,50V
L601	PELN0530-101JZ	COIL	100μH
CF601	PEVB0497	RESONATOR	
X601	PEVB0422	CRYSTAL RESONATOR	
CN601	PEMC0915-016	FFC CONNECTOR	
CN602	PU60910-5	CONNECTOR	
CN603	PEMC0915-008	FFC CONNECTOR	
CN701	PEMC0915-011	FFC CONNECTOR	

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VIDEO BOARD ASSEMBLY <05>

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10778B-01	VIDEO BOARD ASSEMBLY	
IC1	PB20577B-02-SS	Y.MOD ASSY	
IC101	JCP0040-HT	IC	
IC202	TL8825P	IC	
Q1	2SA1576(RS)	TRANSISTOR	
Q2	DTC144WU	TRANSISTOR	
Q3	DTC124EU	CHIP D TRANSISTOR	
Q4	DTC144WU	TRANSISTOR	
Q5	DTC144WU	TRANSISTOR	
Q7	DTC144WU	TRANSISTOR	
Q15	2SC4081(QRS)	TRANSISTOR	
Q101	2SC4081(QRS)	TRANSISTOR	
Q102	2SC4081(S)	TRANSISTOR	
Q103	DTC124EU	CHIP D TRANSISTOR	
Q104	2SA1576(RS)	TRANSISTOR	
Q105	2SA1576(RS)	TRANSISTOR	
Q106	2SC4081(QRS)	TRANSISTOR	
Q107	DTC144WU	TRANSISTOR	
Q109	2SC4081(QRS)	TRANSISTOR	
Q110	2SC4081(QRS)	TRANSISTOR	
Q111	2SC4081(QRS)	TRANSISTOR	
Q112	DTC144EU	TRANSISTOR	
Q113	2SC4081(QRS)	TRANSISTOR	
Q116	2SC4081(QRS)	TRANSISTOR	
Q205	2SC4081(QRS)	TRANSISTOR	
Q206	2SA1576(RS)	TRANSISTOR	
Q208	2SA1576(RS)	TRANSISTOR	
Q209	2SC4081(QRS)	TRANSISTOR	
Q210	2SC4081(QRS)	TRANSISTOR	
Q211	2SC4081(QRS)	TRANSISTOR	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q212	2SC4081(QRS)	TRANSISTOR	
Q213	2SC4081(QRS)	TRANSISTOR	
Q214	2SA1576(RS)	TRANSISTOR	
Q215	2SA1532(BC)	TRANSISTOR	
D1	DAN202U	DIODE	
D2	DAP202U	DIODE	
D4	DAN202U	DIODE	
D8	DAP202U	DIODE	
D101	1SS133	DIODE	
D102	DAP202U	DIODE	
D103	DAN202U	DIODE	
D104	1SS133	DIODE	
D105	DAN202U	DIODE	
D106	1SS133	DIODE	
D107	1SS133	DIODE	
D110	DAN202U	DIODE	
D111	DAN202U	DIODE	
R1	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R2	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R3	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R4	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R5	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R6	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R7	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R8	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R9	QVZ3521-151Z	V RESISTOR,SUB EMPHA LEVEL	
R10	QRSA08J-241YN	RESISTOR	240Ω,1/10W
R11	QRSA08J-242YN	RESISTOR	2.4KΩ,1/10W
R12	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R13	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R14	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R15	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R16	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
R17	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R18	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R19	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R20	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R21	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R22	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R23	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R25	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R27	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R28	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R29	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R30	QRSA08J-112YN	RESISTOR	1.1KΩ,1/10W
R31	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R34	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R35	QVZ3521-223Z	V RESISTOR,S PB Y LEVEL	
R36	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R37	QVZ3521-332Z	V RESISTOR,N PB Y LEVEL-1	
R38	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R41	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R48	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R49	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R101	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R102	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
R103	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R104	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R105	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
R106	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R107	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R108	QVZ3521-102Z	V RESISTOR,COLOR COMB GAIN	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R109	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R110	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R111	QRD161J-223	RESISTOR	22KΩ,1/6W
R112	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R113	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R114	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R118	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R119	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R120	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R121	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R122	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R123	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R124	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R125	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R126	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R127	QRD161J-122	RESISTOR	1.2KΩ,1/6W
R128	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R129	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R130	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R131	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R132	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R133	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R134	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R135	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R136	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R137	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R138	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R140	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
R141	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R142	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R143	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R144	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R145	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R146	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R147	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R148	QRD161J-103	RESISTOR	10KΩ,1/6W
R149	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R151	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R152	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R153	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R154	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R155	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R204	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R206	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R207	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R211	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R212	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R213	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R214	QVZ3521-681Z	V RESISTOR,NC BALANCE	
R215	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R216	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R217	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R218	QRD161J-102	RESISTOR	1KΩ,1/6W
R219	QVZ3521-681Z	V RESISTOR,CNR NC BALANCE-1	
R220	QVZ3521-152Z	V RESISTOR,CNR NC BALANCE-2	
R221	ERT-D2FGL142S	THERMISTOR	
R222	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R223	QRD161J-102	RESISTOR	1KΩ,1/6W
R224	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R225	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R226	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R227	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R228	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R229	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R230	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R231	QRSA08J-100YN	RESISTOR	10Ω,1/10W
R233	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R234	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R235	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R237	QRSA08J-511YN	RESISTOR	510Ω,1/10W
C1	QCSA1HJ-821	CAPACITOR	820pF,50V
C2	QETC1CM-226	E CAPACITOR	22µF,16V
C3	QETC0JM-107	E CAPACITOR	100µF,6.3V
C4	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C5	QETC1CM-106	E CAPACITOR	10µF,16V
C6	QETC1HM-225	E CAPACITOR	2.2µF,50V
C7	QETC1HM-225	E CAPACITOR	2.2µF,50V
C8	QETC1AM-226	E CAPACITOR	22µF,10V
C9	QETC0JM-476	E CAPACITOR	47µF,6.3V
C10	QETC0JM-107	E CAPACITOR	100µF,6.3V
C12	QETC0JM-107	E CAPACITOR	100µF,6.3V
C13	QCSA1HJ-270	CAPACITOR	27pF,50V
C14	QCSA1HJ-220	CAPACITOR	22pF,50V
C15	QCSA1HJ-270	CAPACITOR	27pF,50V
C16	QCSA1HJ-270	CAPACITOR	27pF,50V
C17	QCSA1HJ-470	CAPACITOR	47pF,50V
C18	QCC11CJ-473	CAPACITOR	0.047µF,16V
C19	QCFA1HZ-473	CAPACITOR	0.047µF,50V
C20	QETC0JM-476	E CAPACITOR	47µF,6.3V
C21	QETC1AM-226	E CAPACITOR	22µF,10V
C22	QETC1CM-106	E CAPACITOR	10µF,16V
C23	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C24	QETC1EM-475	E CAPACITOR	4.7µF,25V
C25	QETC1CM-476	E CAPACITOR	47µF,16V
C26	QETC0JM-476	E CAPACITOR	47µF,6.3V
C29	QCSA1HJ-180	CAPACITOR	18pF,50V
C30	QETC0JM-476	E CAPACITOR	47µF,6.3V
C31	QETC1HM-105	E CAPACITOR	1µF,50V
C101	QCFA1HZ-223	CAPACITOR	0.022µF,50V
C102	QCYA1HK-102	CAPACITOR	0.001µF,50V
C103	QCSA1HJ-101	CAPACITOR	100pF,50V
C104	QCSA1HJ-101	CAPACITOR	100pF,50V
C105	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C107	QETC0JM-107	E CAPACITOR	100µF,6.3V
C108	QCVB1CN-103	CAPACITOR	0.01µF,16V
C109	QETC1CM-106	E CAPACITOR	10µF,16V
C110	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C111	QCBB1HJ-102	CAPACITOR	0.001µF,50V
C112	QETC1HM-225	E CAPACITOR	2.2µF,50V
C113	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C114	QETC1HM-224	E CAPACITOR	0.22µF,50V
C117	QCC11EJ-104	CAPACITOR	0.1µF,25V
C118	QCSA1HJ-561	CAPACITOR	560pF,50V
C119	QETC1EM-335	E CAPACITOR	3.3µF,25V
C120	QETC1HM-475	E CAPACITOR	4.7µF,50V
C121	QCYA1HK-153	CAPACITOR	0.015µF,50V
C123	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C124	QETC0JM-107	E CAPACITOR	100µF,6.3V
C125	QCSA1HJ-471	CAPACITOR	470pF,50V
C126	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C127	QCSA1HJ-102	CAPACITOR	0.001µF,50V
C128	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C129	QETC1HM-104	E CAPACITOR	0.1µF,50V
C130	QCVB1CN-103	CAPACITOR	0.01µF,16V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C131	QETC1HM-225	E CAPACITOR	2.2µF,50V
C132	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C133	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C134	QCTA1CH-220	CAPACITOR	22pF,16V
C135	QCTA1CH-100	CAPACITOR	10pF,16V
C136	QCFA1CZ-105	CAPACITOR	1µF,16V
C137	QETC1HM-105	E CAPACITOR	1µF,50V
C138	QCSA1HJ-221	CAPACITOR	220pF,50V
C139	QETC1CM-106	E CAPACITOR	10µF,16V
C140	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C141	QCSA1HJ-330	CAPACITOR	33pF,50V
C142	QCYA1EK-473	CAPACITOR	0.047µF,25V
C143	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C144	QCSA1HJ-221	CAPACITOR	220pF,50V
C146	QCSA1HJ-221	CAPACITOR	220pF,50V
C147	QCSA1HJ-680	CAPACITOR	68pF,50V
C148	QCFA1EZ-104	CAPACITOR	0.1µF,25V
C149	QETC1HM-474	E CAPACITOR	0.47µF,50V
C152	QCSA1HJ-470	CAPACITOR	47pF,50V
C201	QCYA1HK-103	CAPACITOR	0.01µF,50V
C202	QETC0JM-107	E CAPACITOR	100µF,6.3V
C211	QETC1EM-475	E CAPACITOR	4.7µF,25V
C212	QETC1CM-106	E CAPACITOR	10µF,16V
C213	QCSA1HJ-102	CAPACITOR	0.001µF,50V
C214	QCYA1HK-103	CAPACITOR	0.01µF,50V
C215	QCYA1HK-472	CAPACITOR	0.0047µF,50V
C216	QETC1HM-474	E CAPACITOR	0.47µF,50V
C217	QETC1EM-475	E CAPACITOR	4.7µF,25V
C218	QETC1HM-105	E CAPACITOR	1µF,50V
C219	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C220	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C221	QETC0JM-476	E CAPACITOR	47µF,6.3V
C222	QETC1CM-106	E CAPACITOR	10µF,16V
C223	QCYA1HK-103	CAPACITOR	0.01µF,50V
C224	QCTA1CH-220	CAPACITOR	22pF,16V
C225	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C226	QCSA1HJ-120	CAPACITOR	12pF,50V
C227	QCYA1HK-103	CAPACITOR	0.01µF,50V
C228	QETC0JM-476	E CAPACITOR	47µF,6.3V
C229	QCYA1HK-102	CAPACITOR	0.001µF,50V
C230	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C231	QCYA1HK-103	CAPACITOR	0.01µF,50V
C232	QCYA1HK-103	CAPACITOR	0.01µF,50V
C234	QCFA1HZ-103	CAPACITOR	0.01µF,50V
C235	QCYA1HK-103	CAPACITOR	0.01µF,50V
C236	QCYA1HK-103	CAPACITOR	0.01µF,50V
C237	QCSA1HJ-471	CAPACITOR	470pF,50V
C238	QCYA1HK-103	CAPACITOR	0.01µF,50V
C240	QCFA1HZ-103	CAPACITOR	0.01µF,50V
L1	PU59988-101J	COIL	100µH
L2	PU59153-101K	COIL	100µH
L3	PU48530-101K	COIL	100µH
L4	PU48530-101K	COIL	100µH
L5	PU59988-100J	COIL	10µH
L6	PU59988-820J	COIL	82µH
L7	PU59988-680J	COIL	68µH
L8	PU48530-471J	COIL	470µH
L9	PU59988-121JY	COIL	120µH
L101	PELN0580	COIL,COLOR COMB PHASE	
L102	PU48530-101K	COIL	100µH
L103	PU59988-100J	COIL	10µH
L104	PU48530-471J	COIL	470µH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L105	PU48530-222J	COIL	2.2mH
	L203	PU48530-101K	COIL	100µH
	L206	PU48530-101K	COIL	100µH
	L207	PU48530-101K	COIL	100µH
	L208	PU59988-330J	COIL	33µH
	L209	PU48530-101K	COIL	100µH
	LPF1	PELN0336-01-01	LOW PASS FILTER	
	LPF2	PELN0409	LOW PASS FILTER	
	LPF101	PELN0574	LOW PASS FILTER	
	LPF102	PU61057	LOW PASS FILTER	
	LPF201	PU60055	LOW PASS FILTER	
	BPF101	PELN0743	BAND PASS FILTER	
	BPF201	PELN0343	BAND PASS FILTER	
	DL101	PU60227	1H DELAY LINE	
	LC201	PU59736-330	N FILTER	
	LC202	PU59736-102	N FILTER	
	LC203	PU59736-330	N FILTER	
	LC204	PU59736-330	N FILTER	
	LC205	PU59736-330	N FILTER	
	LC206	PU59736-330	N FILTER	
⚠	X101	PEVB0347	CRYSTAL RESONATOR	
	T101	PELN0575	TANK FILTER	
	SLD1	PQ33617-1-1	SHIELD CASE(2)	
	SLD2	PQ46163	SHIELD PLATE(2)	
	CN1	PEMC0713-110	HOUSING	
	CN2	PEMC0713-109	HOUSING	
	CN3	PEMC0713-109	HOUSING	

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TUNER/MIC BOARD ASSEMBLY <07>

PWBA1	PB10782B-01	TUNER/MIC BOARD ASSEMBLY

– TUNER/IF SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	RF1	PERF0064	RF CONVERTER	
	TNR1	PERF0144	TUNER	
	IC1	LA7577V	IC	
	Q2	2SC1317(RS)	TRANSISTOR	
		or 2SC1318(RS)	TRANSISTOR	
	Q3	2SD1450S,T	TRANSISTOR	
		or 2SD1468S(RS)	TRANSISTOR	
	Q4	2SC1317(RS)	TRANSISTOR	
		or 2SC1318(RS)	TRANSISTOR	
	Q5	2SA933(RS)	TRANSISTOR	
	Q6	DTC143TU	TRANSISTOR	
	D2	HZ30-2L	ZENER DIODE	
	D3	MTZ11B	ZENER DIODE	
	D4	MTZ10B	ZENER DIODE	
	R1	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R2	QRSA08J-680YN	RESISTOR	68Ω,1/10W
	R3	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R4	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R6	QRSA08J-301YN	RESISTOR	300Ω,1/10W
	R7	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R8	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R9	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R11	QRSA08J-102YN	RESISTOR	1KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R12	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R15	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R16	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R17	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
	R18	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R19	QVPA606-153Z	V RESISTOR,RF AGC	
	R20	QRSA08J-824YN	RESISTOR	820KΩ,1/10W
	R21	QRD181J-153	RESISTOR	15KΩ,1/8W
	R22	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R23	QRSA08J-820YN	RESISTOR	82Ω,1/10W
	R24	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R25	QRD161J-104	RESISTOR	100KΩ,1/6W
	R26	QRSA08J-513YN	RESISTOR	51KΩ,1/10W
	R27	QRSA08J-513YN	RESISTOR	51KΩ,1/10W
	R29	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
	R30	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R31	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R32	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R33	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R34	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R35	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R36	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R37	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R38	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R39	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R40	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R41	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R42	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R43	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R44	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R45	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	C1	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C2	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C3	QCTA1CH-470	CAPACITOR	47pF,16V
	C5	QCTA1CH-470	CAPACITOR	47pF,16V
	C10	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C15	QCTA1CH-331	CAPACITOR	330pF,16V
	C16	QETC1HM-224	E CAPACITOR	0.22μF,50V
	C18	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C19	QFLC1HJ-683Z	M CAPACITOR	0.068μF,50V
	C20	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C21	QETC1HM-105	E CAPACITOR	1μF,50V
	C22	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C23	QCTA1CH-150	CAPACITOR	15pF,16V
	C24	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C25	PECA0780-154Z	M CAPACITOR	
	C26	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C27	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C30	QETC1CM-476	E CAPACITOR	47μF,16V
	C31	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C32	QETC1CM-476	E CAPACITOR	47μF,16V
	C33	QETC1CM-476	E CAPACITOR	47μF,16V
	C36	QETC1CM-476	E CAPACITOR	47μF,16V
	C37	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C38	QCYA1HK-152	CAPACITOR	0.0015μF,50V
	C39	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C40	QETC1CM-476	E CAPACITOR	47μF,16V
	C41	QETC1HM-106	E CAPACITOR	10μF,50V
	C42	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C43	QETC1CM-476	E CAPACITOR	47μF,16V
	C44	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C45	QETC1CM-476	E CAPACITOR	47μF,16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L1	PU60025-R82	COIL	0.82μH
	L2	PU60025-1R0	COIL	1μH
	L4	PU60025-R91S	COIL	0.91μH
	L5	PU59152-270J	COIL	27μH
	L6	PU59152-150J	COIL	15μH
	L11	PU59152-R22J	COIL	0.22μH
	L12	PU59152-101J	COIL	100μH
	CF1	PU59039	CERAMIC FILTER	
	CF2	PU60774	CERAMIC FILTER	
	SAW1	PEVB0419	SAW FILTER	
	SAW2	PEVB0420	SAW FILTER	
	T1	PELN0403-02	IF.TRANSFORMER,FM DETECT	
	T2	PELN0401	IF.TRANSFORMER,AFC	
	T3	PELN0402	IF.TRANSFORMER,VCO	
	ETH1	PQ45208	EARTH PLATE	
	SCW1	SDST2605Z	SCREW	
	SCW2	SDSF3010Z	SCREW,X2	
⚠	TB2	PQ11490-3	TERMINAL BOARD(2)	
	WR1	PW30402-BB12M	COAXIAL CORD	
	CN1	PEMC0915-005	FFC CONNECTOR	
	CN2	PU59555-3	CONNECTOR	
	CN3	PEMC0915-008	FFC CONNECTOR	
	CN4	PU60910-4	CONNECTOR	
	CN5	PU59555-2	CONNECTOR	

– DEMOD SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC2	UPC1872CU	IC	
	Q201	DTC114TU	TRANSISTOR	
	Q202	DTC114TU	TRANSISTOR	
	R201	QRSA08J-683YN	RESISTOR	68KΩ,1/10W
	R202	QRSA08J-302YN	RESISTOR	3KΩ,1/10W
	R203	QRSA08J-512YN	RESISTOR	5.1KΩ,1/10W
	R204	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R205	QRSA08J-513YN	RESISTOR	51KΩ,1/10W
	R206	QRSA08J-513YN	RESISTOR	51KΩ,1/10W
	R207	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R208	NRVA62D-393N	RESISTOR	39KΩ,1/16W
	R209	NRVA62D-333N	RESISTOR	33KΩ,1/16W
	R210	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R211	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R212	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R213	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R216	QVPA606-473Z	V RESISTOR,SEPARATION-1	
	R217	QVPA606-104Z	V RESISTOR,SEPARATION-2	
	R218	QVPC624-223	V RESISTOR,VCO	
	R219	QVPC624-103	V RESISTOR,LPF	
	R223	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R224	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R225	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R227	NRVA62D-303N	RESISTOR	30KΩ,1/16W
	R228	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R229	QRSA08J-334YN	RESISTOR	330KΩ,1/10W
	R230	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	C201	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C202	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C203	QETC1HM-105	E CAPACITOR	1μF,50V
	C204	QETC1HM-105	E CAPACITOR	1μF,50V
	C205	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C206	QETC1HM-105	E CAPACITOR	1μF,50V
	C207	QETC1CM-226	E CAPACITOR	22μF,16V
	C208	QETC1CM-106	E CAPACITOR	10μF,16V

△ REF No.	PART No.	PART NAME, DESCRIPTION	
C209	QETC1CM-106	E CAPACITOR	10μF,16V
C210	QEE81CJ-106	TANTAL CAPACITOR	10μF,16V
C211	QEE81CJ-335	TANTAL CAPACITOR	3.3μF,16V
C212	QCYA1HK-103	CAPACITOR	0.01μF,50V
C213	QCYA1EK-473	CAPACITOR	0.047μF,25V
C214	QCYA1EK-104	CAPACITOR	0.1μF,25V
C215	QCYA1EK-104	CAPACITOR	0.1μF,25V
C216	QCYA1EK-104	CAPACITOR	0.1μF,25V
C217	QCYA1EK-104	CAPACITOR	0.1μF,25V
C218	QCYA1HK-103	CAPACITOR	0.01μF,50V
C219	QCYA1HK-103	CAPACITOR	0.01μF,50V
C220	QCYA1HK-103	CAPACITOR	0.01μF,50V
C221	QETC1CM-476	E CAPACITOR	47μF,16V
C222	QETC1HM-105	E CAPACITOR	1μF,50V

– MIC AMP SECTION (S6900U ONLY) –

IC301	XRA15218N	IC	
R301	QRD161J-473	RESISTOR	47KΩ,1/6W
R302	QRD161J-393	RESISTOR	39KΩ,1/6W
R303	QRD161J-182	RESISTOR	1.8KΩ,1/6W
R304	QRD161J-273	RESISTOR	27KΩ,1/6W
R305	QRD161J-102	RESISTOR	1KΩ,1/6W
R306	QRD161J-223	RESISTOR	22KΩ,1/6W
C301	QEK61HM-105	E CAPACITOR	1μF,50V
C302	QEK61HM-105	E CAPACITOR	1μF,50V
C303	QCBB1HJ-391	CAPACITOR	390pF,50V
C304	QEK61HM-105	E CAPACITOR	1μF,50V
C305	QEK61HM-105	E CAPACITOR	1μF,50V
C306	QETC1CM-106	E CAPACITOR	10μF,16V
SLD1	PQ42581	PRE AMP SHIELD1	
SLD2	PQ42582	PRE AMP SHIELD2	
SLD3	PQ42583	PRE AMP SHIELD3	
CN301	PU59555-3	CONNECTOR	
CN302	PEMC0915-004	FFC CONNECTOR	

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AUDIO UNIT BOARD ASSEMBLY(HR-S4900U)<09>

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10716A-02	AUDIO UNIT BOARD ASSEMBLY	
IC1	JCP0038	IC	
Q1	2SC4081(R)	TRANSISTOR	
Q2	2SC4081(R)	TRANSISTOR	
D1	DAN202U	DIODE	
R1	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R2	NRSA63J-511N	RESISTOR	510Ω,1/16W
R3	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R4	NRSA63J-513N	RESISTOR	51KΩ,1/16W
R5	NVP1301-473NU	V RESISTOR,L DEVIATION	
R8	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R10	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R11	NVP1301-153NZ	V RESISTOR,L CARRIER	
R12	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R14	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R18	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R19	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R20	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R24	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W
R25	NVP1301-153NZ	V RESISTOR,R CARRIER	
R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R27	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R30	NVP1301-473NU	V RESISTOR,R DEVIATION	
R31	NRSA63J-513N	RESISTOR	51KΩ,1/16W
R32	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R33	NRSA63J-511N	RESISTOR	510Ω,1/16W
R34	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R35	NRSA63J-514N	RESISTOR	510KΩ,1/16W
R36	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R37	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R41	NRSA63J-101N	RESISTOR	100Ω,1/16W
R42	NRSA63J-101N	RESISTOR	100Ω,1/16W
R43	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R44	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R45	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R46	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R47	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R48	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R49	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R50	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R51	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R52	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R56	NRSA63J-101N	RESISTOR	100Ω,1/16W
R57	NRSA63J-101N	RESISTOR	100Ω,1/16W
C2	QETC1AM-336	E CAPACITOR	33μF,10V
C3	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
C4	QETC1HM-225	E CAPACITOR	2.2μF,50V
C5	QFV21HJ-333	F CAPACITOR	0.033μF,50V
C6	QETC1AM-476	E CAPACITOR	47μF,10V
C7	QETC1CM-106	E CAPACITOR	10μF,16V
C8	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
C9	QETC0JM-107	E CAPACITOR	100μF,6.3V
C10	NCB31HK-102A	CAPACITOR	0.001μF,50V
C11	QFLC1HJ-104Z	M CAPACITOR	0.1μF,50V
C12	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C13	NCB31HK-821A	CAPACITOR	820pF,50V
C14	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
C15	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C16	QETC1HM-105	E CAPACITOR	1μF,50V
C18	NCB31HK-561A	CAPACITOR	560pF,50V
C20	NCS31HJ-101A	CAPACITOR	100pF,50V
C21	NCS31HJ-101A	CAPACITOR	100pF,50V
C22	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
C23	NCB31HK-821A	CAPACITOR	820pF,50V
C24	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
C25	QFLC1HJ-104Z	M CAPACITOR	0.1μF,50V
C26	NCB31HK-102A	CAPACITOR	0.001μF,50V
C27	QETC0JM-107	E CAPACITOR	100μF,6.3V
C28	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
C29	QETC1CM-106	E CAPACITOR	10μF,16V
C30	QETC1AM-476	E CAPACITOR	47μF,10V
C31	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
C32	QETC1HM-225	E CAPACITOR	2.2μF,50V
C33	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
C34	QETC1AM-336	E CAPACITOR	33μF,10V
C36	QETC1CM-106	E CAPACITOR	10μF,16V
C38	QETC1CM-226	E CAPACITOR	22μF,16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C39	QETC1CM-106	E CAPACITOR	10μF,16V
	C40	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C41	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C42	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C43	QETC1AM-107	E CAPACITOR	100μF,10V
	C44	QETC1CM-476	E CAPACITOR	47μF,16V
	C45	QETC1AM-476	E CAPACITOR	47μF,10V
	C46	QETC1CM-106	E CAPACITOR	10μF,16V
	C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C48	QETC1CM-106	E CAPACITOR	10μF,16V
	C49	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C50	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C51	QFV21HJ-563	F CAPACITOR	0.056μF,50V
	C52	QFV21HJ-563	F CAPACITOR	0.056μF,50V
	C53	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C54	QETC1CM-106	E CAPACITOR	10μF,16V
	C55	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C56	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C57	QETC1CM-106	E CAPACITOR	10μF,16V
	C58	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C59	QETC1HM-105	E CAPACITOR	1μF,50V
	C60	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C61	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	L1	PELN0530-101JZ	COIL	100μH
	L2	PELN0530-101JZ	COIL	100μH
	L3	PELN0530-101JZ	COIL	100μH
	BPF1	PU60396	BAND PASS FILTER	
	BPF2	PU60397	BAND PASS FILTER	
	JP1	PEMC0919-126	PIN HEADER	
	JP2	PEMC0919-126	PIN HEADER	

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A/C HEAD BOARD <12>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWB	PB40046-01-02	AUDIO CONTROL HEAD BOARD	
	CN201	PU59555-104	CONNECTOR	
	CN202	PU59555-103	CONNECTOR	

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ON SCREEN BOARD ASSEMBLY <17>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB20631A-01	ON SCREEN BOARD ASSEMBLY	
	IC1	M52684AP	IC	
	IC2	M35010-089SP	IC	
	Q1	DTC144EU	TRANSISTOR	
	Q2	DTC114EU	TRANSISTOR	
	Q3	DTC144EU	TRANSISTOR	
	Q4	2SK665	TRANSISTOR	
	Q5	2SA1576(QR)	TRANSISTOR	
	Q6	2SC4081(QRS)	TRANSISTOR	
	Q8	2SC4081(QRS)	TRANSISTOR	
	Q9	2SA1576(QR)	TRANSISTOR	
	Q10	2SC4081(QRS)	TRANSISTOR	
	D1	DAP202U	DIODE	
	R1	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R2	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R3	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R4	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R5	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R6	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R7	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R8	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R9	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R10	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R11	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R12	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R13	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R14	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R15	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R16	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R17	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R18	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R19	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R20	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R21	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R22	QRSA08J-912YN	RESISTOR	9.1KΩ,1/10W
	R23	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R24	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R25	QRD161J-151	RESISTOR	150Ω,1/6W
	R26	QRSA08J-182YN	RESISTOR	1.8KΩ,1/10W
	R27	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R28	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R29	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R33	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R34	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R35	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R40	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	C1	QETC1HM-334	E CAPACITOR	0.33μF,50V
	C2	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C3	QCSA1HJ-220	CAPACITOR	22pF,50V
	C4	QCYA1HK-152	CAPACITOR	0.0015μF,50V
	C5	QETC1CM-106	E CAPACITOR	10μF,16V
	C6	QETC1HM-105	E CAPACITOR	1μF,50V
	C7	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C8	QFN31HJ-562	M CAPACITOR	0.0056μF,50V
	C9	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C10	QETC1CM-106	E CAPACITOR	10μF,16V
	C11	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C12	QCSA1HJ-181	CAPACITOR	180pF,50V
	C13	QCSB1HJ-470	CAPACITOR	47pF,50V
	C14	QCSA1HJ-430	CAPACITOR	43pF,50V
	C15	QFN31HJ-104	M CAPACITOR	0.1μF,50V
	C20	QCSA1HJ-680	CAPACITOR	68pF,50V
	C21	QAT3120-200Z	TRIM CAPACITOR,DOT CLOCK	20pF
	C22	QCTA1CH-150	CAPACITOR	15pF,16V
	C23	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C24	QETC0JM-476	E CAPACITOR	47μF,6.3V
	L1	PU48530-101K	COIL	100μH
	L2	PU59988-220JY	COIL	22μH
	L3	PU48530-101K	COIL	100μH
⚠	CF1	PU60086	RESONATOR	
⚠	X1	PEVB0435	CRYSTAL RESONATOR	
	CN1	PEMC0712-114	PIN HEADER	

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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DISPLAY BOARD ASSEMBLY <28>

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10781B1-01	DISPLAY BOARD ASSY,HR-S4900U	
	PB10781A1-01	DISPLAY BOARD ASSY,HR-S6900U	
IC1	UPD16311GC(E)	IC	
IC2	GP1U801X	IR DETECT UNIT	
	or GP1U541X	IR DETECT UNIT	
D1	RD4.7ES-T1B2	ZENER DIODE	
D2	1SS132Y	DIODE	
D3	1SS132Y	DIODE	
D4	1SS132Y	DIODE	
D5	1SS132Y	DIODE	
D6	1SS132Y	DIODE	
D7	1SS132Y	DIODE	
D17	SLH-34VC3F	LE DIODE,STEREO	
D18	SLH-34MC3F	LE DIODE,SAP	
D19	SLH-34MC3F	LE DIODE,S-VHS	
D20	1SS133	DIODE	
D21	1SS133	DIODE	
D25	11ES2	DIODE	
R1	QRD161J-333	RESISTOR	33KΩ,1/6W
R6	QRD161J-333	RESISTOR	33KΩ,1/6W
R7	QRD161J-333	RESISTOR	33KΩ,1/6W
R8	QRD161J-333	RESISTOR	33KΩ,1/6W
R9	QRD161J-333	RESISTOR	33KΩ,1/6W
R10	QRD161J-333	RESISTOR	33KΩ,1/6W
R11	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R12	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R13	QRD161J-471	RESISTOR	470Ω,1/6W
R17	QRD161J-331	RESISTOR	330Ω,1/6W
R18	QRD161J-331	RESISTOR	330Ω,1/6W
R19	QRD161J-331	RESISTOR	330Ω,1/6W
R23	QRD161J-562	RESISTOR	5.6KΩ,1/6W
R24	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R25	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R26	QRD161J-472	RESISTOR	4.7KΩ,1/6W
RA1	QRB045J-333XM	RESISTOR ARRAY	33KΩ,1/8W
C1	QEK60JM-107	E CAPACITOR	100μF,6.3V
C2	QEK61HM-106	E CAPACITOR	10μF,50V
C3	QCF31HP-473	CAPACITOR	0.047μF,50V
C4	QCF31HP-473	CAPACITOR	0.047μF,50V
C5	QCSB1HJ-470	CAPACITOR	47pF,50V
C8	QCC11EJ-104	CAPACITOR	0.1μF,25V
C9	QCSB1HJ-470	CAPACITOR	47pF,50V
C10	QER60JM-476	E CAPACITOR	47μF,6.3V
C11	QEK60JM-476	E CAPACITOR	47μF,6.3V
C12	QCSB1HJ-470	CAPACITOR	47pF,50V
C13	QCBB1HJ-101	CAPACITOR	100pF,50V
C15	QCBB1HJ-101	CAPACITOR	100pF,50V
L1	PU48530-101J	COIL	100μH
S8	PU60392-2-2	TACT SWITCH,STOP/EJECT	
S9	PU60392-2-2	TACT SWITCH,PLAY	
S10	PU60392-2-2	TACT SWITCH,REC	
S11	PU60392-2-2	TACT SWITCH,PAUSE	
S12	PU60392-2-2	TACT SWITCH,A.DUB	
S13	PU60392-2-2	TACT SWITCH,INSERT	
S14	PU60392-2-2	TACT SWITCH,SP/EP	
S15	PU60392-2-2	TACT SWITCH,TIMER	
S16	PU60392-2-2	TACT SWITCH,TV/VIDEO	
S17	PU60392-2-2	TACT SWITCH,S-VHS	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
S18	PU60392-2-2	TACT SWITCH,R.A.EDIT
S19	PU60392-2-2	TACT SWITCH,IN/OUT
S20	PU60392-2-2	TACT SWITCH, START
FDP1	PEDP0104	FLUORESCENT DISPLAY PANEL
CL1	PU55379	MINI CLAMP
HD1	PQM30038-2-2	LED HOLDER,X3 D17 D18 D19
HD2	PQ31334-1-2	D.HOLDER (R)
HD3	PQ31333-1-2	D.HOLDER (L)
JA4	PU60664-3	MINI JACK,MIC HR-S6900U
CN1	PEMC0917-111	FFC CONNECTOR,(1-11)
CN2	PU61044-104	WIRE TRAP
CN3	PEMC0889-015	B TO B CONNECTOR
CN8	PU59555-7	CONNECTOR

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SWITCH/JACK BOARD ASSEMBLY <36>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10781A2-01	SWITCH/JACK BOARD ASSY,HR-S6900U	
	PB10781B2-01	SWITCH/JACK BOARD ASSY,HR-S4900U	
D11	1SS133	DIODE	
D12	1SS133	DIODE	
D14	SLH-34VC3F	LE DIODE,POWER	
D15	SLH-34MC3F	LE DIODE,F.MESSAGE	
D16	SLH-34DC3F	LE DIODE,HYPER BASS	
R2	QRD161J-103	RESISTOR	10KΩ,1/6W
R3	QRD161J-750	RESISTOR	75Ω,1/6W
R4	QRD161J-750	RESISTOR	75Ω,1/6W
R5	QRD161J-560	RESISTOR	56Ω,1/6W
R14	QRD161J-331	RESISTOR	330Ω,1/6W
R15	QRD161J-331	RESISTOR	330Ω,1/6W
R16	QRD161J-331	RESISTOR	330Ω,1/6W
R20	QRD161J-180	RESISTOR	18Ω,1/6W
R21	QRD161J-103	RESISTOR	10KΩ,1/6W
R22	QRD161J-103	RESISTOR	10KΩ,1/6W
C17	QCVB1CN-103	CAPACITOR	0.01μF,16V
C18	QCVB1CN-103	CAPACITOR	0.01μF,16V
S1	PU60392-2-2	TACT SWITCH,POWER	
S2	PU60392-2-2	TACT SWITCH,MENU	
S3	PU60392-2-2	TACT SWITCH,F.MESSAGE	
S4	PU60392-2-2	TACT SWITCH,HYPER BASS	
S5	PU60392-2-2	TACT SWITCH,SELECT	
S6	PU60392-2-2	TACT SWITCH,CH-	
S7	PU60392-2-2	TACT SWITCH,CH+	
CL1	PU59311	WIRE CLAMP	
CL2	PU59311-3	WIRE CLAMP	
HD1	PQ43214	LED HOLDER,X3 D14 D15 D16	
JA1	PEMC1008	PIN JACK(SW),RCA JACK	
JA2	PEMC0937	MINI DIN CONN,S	
JA3	PU60659	MINI JACK,R.PAUSE	
CN4	PEMC0825-015	B TO B CONNECTOR	
CN5	PU59555-6	CONNECTOR	
CN6	PU59555-3	CONNECTOR	
CN7	PU59555-3	CONNECTOR,HR-S6900U	

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PRE BOARD ASSEMBLY <42>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB20622B	PRE BOARD ASSEMBLY	
⚠	IC1	JCP0047-WE	IC	
	Q3	2SC4081(QRS)	TRANSISTOR	
	Q4	2SA1576(QR)	TRANSISTOR	
	Q5	2SA1576(QR)	TRANSISTOR	
	Q6	2SA1576(QR)	TRANSISTOR	
	Q7	2SC4081(QRS)	TRANSISTOR	
	Q8	2SC4081(QRS)	TRANSISTOR	
	D1	DAN202U	DIODE	
	D2	DAP202U	DIODE	
	R1	QRSA08J-330YN	RESISTOR	33Ω,1/10W
	R2	QRSA08J-430YN	RESISTOR	43Ω,1/10W
	R3	QRSA08J-470YN	RESISTOR	47Ω,1/10W
	R4	QRSA08J-430YN	RESISTOR	43Ω,1/10W
	R7	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R8	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R9	NRVA62D-203N	RESISTOR	20KΩ,1/16W
	R10	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R14	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R15	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R16	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R17	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R18	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R19	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R20	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R25	NVP1311-153N	V RESISTOR,REC FM LEVEL	
	R26	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R27	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R28	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R29	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R30	QRSA08J-301YN	RESISTOR	300Ω,1/10W
	R31	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	R32	QRSA08J-151YN	RESISTOR	150Ω,1/10W
	R33	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
	C1	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C2	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C3	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C4	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C7	QCTA1CH-7R0	CAPACITOR	7pF,16V
	C8	QCTA1CH-120	CAPACITOR	12pF,16V
	C9	QCTA1CH-180	CAPACITOR	18pF,16V
	C10	QCTA1CH-130	CAPACITOR	13pF,16V
	C13	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C14	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C15	QCYA1HK-473	CAPACITOR	0.047μF,50V
	C16	QCYA1HK-473	CAPACITOR	0.047μF,50V
	C17	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C18	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	C19	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C20	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C21	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C22	QEK60JM-107	E CAPACITOR	100μF,6.3V
	C23	QEK60JM-476	E CAPACITOR	47μF,6.3V
	C24	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C26	QCFA1CZ-474	CAPACITOR	0.47μF,16V
	C28	QCFA1CZ-105	CAPACITOR	1μF,16V
	C29	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C30	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C33	QCYA1HJ-222	CAPACITOR	0.0022μF,50V
	C34	QCYA1HJ-222	CAPACITOR	0.0022μF,50V
	C35	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C36	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C37	QEK61AM-476	E CAPACITOR	47μF,10V
	C38	QCSA1HJ-271	CAPACITOR	270pF,50V
	C39	QCSB1HJ-470	CAPACITOR	47pF,50V
	C40	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C41	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C42	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C43	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C44	QCTA1CH-100	CAPACITOR	10pF,16V
	C45	QCTA1CH-100	CAPACITOR	10pF,16V
	C46	QCSA1HJ-221	CAPACITOR	220pF,50V
	C52	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	L1	PU48530-101K	COIL	100μH
	L2	PU48530-101K	COIL	100μH
	L3	PU48530-101K	COIL	100μH
	L4	PU59988-221JW	COIL	220μH
	L5	PU59988-220JL	COIL	22μH
	SLD1	PQ34267	S.FRAME(PRE.)	
	SLD2	PQ34268-1-1	S.CASE(PRE.)	
	WR1	PW30802-1705	FFC WIRE,CN4	
	CN1	PU60566-113	F.P.C CONNECTOR	
	CN2	PU59555-103	CONNECTOR	
	CN3	PU59555-104	CONNECTOR	
	CN4	PU58798-117	FFC CONNECTOR	

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REC BOARD ASSEMBLY <43>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	PB10722B	REC BOARD ASSEMBLY
	SLD1	PQ21502-1-1	SHIELD FRAM(REC
	CN1	PEMC0916-015	FFC CONNECTOR
	CN2	PEMC0968-117	FFC CONNECTOR
	CN3	PEMC0916-009	FFC CONNECTOR
	CN4	PU59555-3	CONNECTOR
	CN201	PU59555-4	CONNECTOR
	CN202	PEMC0915-108	FFC CONNECTOR
	CN301	PU59555-3	CONNECTOR

– RF EQ SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	IC1	MC74HC4052N	IC
		or TC74HC4052AP	IC
	Q2	2SC4081(QRS)	TRANSISTOR
	Q4	DTA144EU	TRANSISTOR
	Q5	DTA124EU	TRANSISTOR
	Q7	DTC124EU	CHIP D TRANSISTOR
	Q8	2SA1576(QR)	TRANSISTOR
	Q9	2SC4081(QRS)	TRANSISTOR
	Q10	2SA1576(QR)	TRANSISTOR
	Q12	2SC4081(QRS)	TRANSISTOR
	Q13	2SC4081(QRS)	TRANSISTOR
	Q14	2SC4081(QRS)	TRANSISTOR

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q15	DTC124EU	CHIP D TRANSISTOR	
Q16	2SA1576(QR)	TRANSISTOR	
Q17	2SC4081(QRS)	TRANSISTOR	
Q18	2SC4081(QRS)	TRANSISTOR	
Q19	2SC4081(QRS)	TRANSISTOR	
Q20	DTC143EU	TRANSISTOR	
Q21	2SC4081(QRS)	TRANSISTOR	
Q22	2SA1576(QR)	TRANSISTOR	
Q23	2SC4081(QRS)	TRANSISTOR	
Q24	DTC144WU	TRANSISTOR	
Q25	2SC1740S(QRS)	TRANSISTOR	
D1	DAN202U	DIODE	
D2	DAN202U	DIODE	
D3	DAN202U	DIODE	
R1	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R3	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R4	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R5	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R6	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R7	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R8	QVPA603-222	V RESISTOR,S SP VIDEO EQ	
R9	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R10	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R11	QVPA603-222	V RESISTOR,S EP VIDEO EQ	
R12	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
R13	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R14	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R15	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R17	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R18	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R19	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R20	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R22	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
R23	QRSA08J-302YN	RESISTOR	3KΩ,1/10W
R24	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R26	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R27	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R28	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R29	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R30	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R31	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R32	QRSA08J-752YN	RESISTOR	7.5KΩ,1/10W
R33	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R34	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R35	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R36	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R37	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R38	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R39	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R40	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R41	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R42	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R43	QRSA08J-392YN	RESISTOR	3.9KΩ,1/10W
R44	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R45	NRVA62D-272N	RESISTOR	2.7KΩ,1/16W
R46	NRVA62D-302N	RESISTOR	3KΩ,1/16W
R47	NRVA62D-302N	RESISTOR	3KΩ,1/16W
R48	NRVA62D-242N	RESISTOR	2.4KΩ,1/16W
R49	QVPA603-332	V RESISTOR,EP REC COLOR LEVEL	
R51	QVPA603-682	V RESISTOR,SP REC COLOR LEVEL	
R53	NRVA62D-103N	RESISTOR	10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R54	NRVA62D-751N	RESISTOR	750Ω,1/16W
R56	NRVA62D-132N	RESISTOR	1.3KΩ,1/16W
R57	NRVA62D-162N	RESISTOR	1.6KΩ,1/16W
R58	NRVA62D-163N	RESISTOR	16KΩ,1/16W
R59	NRVA62D-202N	RESISTOR	2KΩ,1/16W
R60	NRVA62D-162N	RESISTOR	1.6KΩ,1/16W
R62	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R63	QRSA08J-512YN	RESISTOR	5.1KΩ,1/10W
R64	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R65	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
R67	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R68	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R69	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R70	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R71	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R72	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R73	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
R76	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R77	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R78	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
C2	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C3	QCSA1HJ-330	CAPACITOR	33pF,50V
C4	QCSA1HJ-390	CAPACITOR	39pF,50V
C7	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C8	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C9	QCSA1HJ-470	CAPACITOR	47pF,50V
C10	QCSA1HJ-220	CAPACITOR	22pF,50V
C11	QCSA1HJ-150	CAPACITOR	15pF,50V
C12	QCSA1HJ-180	CAPACITOR	18pF,50V
C13	QCSA1HJ-390	CAPACITOR	39pF,50V
C14	QCSA1HJ-150	CAPACITOR	15pF,50V
C15	QCSA1HJ-820	CAPACITOR	82pF,50V
C16	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C17	QETC1CM-476	E CAPACITOR	47μF,16V
C18	QCTA1CH-101	CAPACITOR	100pF,16V
C20	QCSA1HJ-680	CAPACITOR	68pF,50V
C21	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C22	QCSA1HJ-390	CAPACITOR	39pF,50V
C23	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C24	QCSA1HJ-150	CAPACITOR	15pF,50V
C25	QCSA1HJ-330	CAPACITOR	33pF,50V
C26	QCSA1HJ-180	CAPACITOR	18pF,50V
C27	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C28	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C29	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C30	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C31	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C34	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C35	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C36	QETC1CM-476	E CAPACITOR	47μF,16V
C37	QCSA1HJ-331	CAPACITOR	330pF,50V
C38	QCSA1HJ-101	CAPACITOR	100pF,50V
C39	QCSA1HJ-101	CAPACITOR	100pF,50V
C40	QCSA1HJ-120	CAPACITOR	12pF,50V
C41	QCSA1HJ-180	CAPACITOR	18pF,50V
L1	PU59988-560J	COIL	56μH
L2	PU59988-150J	COIL	15μH
L3	PU59988-390J	COIL	39μH
L4	PU59988-221J	COIL	220μH
L5	PU59988-100J	COIL	10μH
L6	PU48530-101K	COIL	100μH
L7	PU59988-270J	COIL	27μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L8	PU59988-270J	COIL	27μH
	L9	PU59988-560J	COIL	56μH
	L10	PU59988-220JY	COIL	22μH
	L11	PU48530-101K	COIL	100μH
	L12	PU59988-180J	COIL	18μH

– FMA P/R SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC201	AN3380NK	IC	
	Q201	DTC124TU	CHIP DTRANSISTOR	
	Q202	DTC124TU	CHIP D TRANSISTOR	
	Q203	DTC114WU	TRANSISTOR	
	Q204	2SC4081(QRS)	TRANSISTOR	
	Q205	DTA114EU	TRANSISTOR	
	Q206	DTC114WU	TRANSISTOR	
	Q210	DTC144WU	TRANSISTOR	
	Q211	DTA114EU	TRANSISTOR	
	D201	1SS133	DIODE	
	D203	1SS133	DIODE	
	D204	1SS133	DIODE	
	R201	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R202	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R203	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R204	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
	R205	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R206	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R207	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R208	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R209	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R210	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R211	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R212	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R214	QRSA08J-560YN	RESISTOR	56Ω,1/10W
	R215	QRSA08J-560YN	RESISTOR	56Ω,1/10W
	R216	QVZ3521-331Z	V RESISTOR,FMA REC FM LEVEL	
	R217	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R218	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R219	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R223	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R224	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	C201	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C202	QCSA1HJ-391	CAPACITOR	390pF,50V
	C203	QCSA1HJ-561	CAPACITOR	560pF,50V
	C204	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C205	QCSA1HJ-561	CAPACITOR	560pF,50V
	C206	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C207	QCFA1CZ-224	CAPACITOR	0.22μF,16V
	C208	QCSA1HJ-391	CAPACITOR	390pF,50V
	C209	QEK60JM-107	E CAPACITOR	100μF,6.3V
	C210	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C211	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C214	QCSA1HJ-330	CAPACITOR	33pF,50V
	C215	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C216	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C217	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C218	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C219	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C220	QEK61EM-476	E CAPACITOR	47μF,25V
	C221	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C224	QCFA1CZ-224	CAPACITOR	0.22μF,16V
	L201	PELN0530-101JZ	COIL	100μH
	BPF201	PELN0290	BAND PASS FILTER	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	SLD1	PQ42581	PRE AMP SHIELD1	
	SLD2	PQ42582	PRE AMP SHIELD2	
	SLD3	PQ42583	PRE AMP SHIELD3	

– FIYING ERASE SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q301	2SA1576(QRS)	TRANSISTOR	
	Q302	2SC4097(QR)	TRANSISTOR	
	Q303	2SA1576(Q)	TRANSISTOR	
	Q304	2SD639R	TRANSISTOR	
	Q305	2SD639R	TRANSISTOR	
	D301	UZ8.2BSC	ZENER DIODE	
	D302	DAN202U	DIODE	
	R301	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R302	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R303	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
	R304	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R305	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R306	QRD161J-104	RESISTOR	100KΩ,1/6W
	R307	QRD161J-121	RESISTOR	120Ω,1/6W
	R308	QRD161J-104	RESISTOR	100KΩ,1/6W
	R309	QRD161J-121	RESISTOR	120Ω,1/6W
	R310	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	C301	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C302	QCC11EJ-123	CAPACITOR	0.012μF,25V
	C303	QCSB1HJ-560	CAPACITOR	56pF,50V
	C304	QCBB1HJ-820	CAPACITOR	82pF,50V
	C305	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C306	QCBB1HJ-820	CAPACITOR	82pF,50V
	C308	QCT25UJ-181	CAPACITOR	180pF
	C309	QCT25UJ-330	CAPACITOR	33pF
	L301	PU48530-560J	COIL	56μH
	L302	PU48530-3R3K	COIL	3.3μH
	L303	PU48530-3R3K	COIL	3.3μH
	L304	PU59152-101J	COIL	100μH
⚠	T301	PU56175	S.TRANS	
	SLD1	PU61041	SHIELD CASE	
	SLD2	PU61042	SHIELD COVER	
	SLD3	PU61043	SHIELD PLATE	

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DECK TERMINAL BOARD ASSEMBLY <51>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10715A-03	DECK TERMINAL BOARD ASSEMBLY	
	Q1,Q2	PU61321-1-1	TAPE SENSOR,X2 (Q1 Q2)	
	S3,S5	PU61320	S CASS.SWITCH,X2 S3 S5	
	TH1,TH3	NTH5D473KB	THERMISTOR,X2	
	IC1	M66007P	IC	
	D1	GL381J	LE DIODE	
	D2	RD6.2ES-T1B1	ZENER DIODE	
	R1	QRD161J-102	RESISTOR	1KΩ,1/6W
	R2	QRD161J-102	RESISTOR	1KΩ,1/6W
	R3	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R4	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R5	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R6	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R7	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R8	QRD161J-103	RESISTOR	10KΩ,1/6W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R9	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R10	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R11	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R12	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R13	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R16	QRD161J-221	RESISTOR	220Ω,1/6W
R17	QRD161J-820	RESISTOR	82Ω,1/6W
R18	QRD161J-221	RESISTOR	220Ω,1/6W
R20	QRD161J-102	RESISTOR	1KΩ,1/6W
R21	QRD161J-223	RESISTOR	22KΩ,1/6W
R22	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R23	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R24	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R25	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R26	QRD161J-563	RESISTOR	56KΩ,1/6W
R27	QRD161J-103	RESISTOR	10KΩ,1/6W
R28	QRD161J-103	RESISTOR	10KΩ,1/6W
R29	QRD161J-103	RESISTOR	10KΩ,1/6W
R30	QRD161J-103	RESISTOR	10KΩ,1/6W
C3	QCBB1HJ-101	CAPACITOR	100pF,50V
C4	QCVB1CM-103	CAPACITOR	0.01μF,16V
S1	PU61319	REC SAFETY SWITCH	
PS1	PU61318	REEL SENSOR	
PS2	PU61318	REEL SENSOR	
CN1	PEMC0918-016	FFC CONNECTOR	
CN2	PU60642	7PIN CONNECTOR	
CN6	PU59555-4	CONNECTOR	

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LOADING MDA BOARD ASSEMBLY <55>

PWBA	PB10715A2	LOADING MDA BOARD ASSY	
193	SDSF2608Z	SCREW,X4	
194	PU61322-1-2	ROTARY ENCODER	
195	PQM30017-40	SLIT WASHER	
⚠ IC101	BA6418N	IC	
⚠	or XRA6418N	IC	
C101	QETC1CM-476	E CAPACITOR	47μF,16V
WR1	PW30218-04416	WIRE	
CN101	PU59555-104	CONNECTOR	

SECTION 6
TECHNICAL INFORMATION

6.1 TIMER CIRCUIT

6.1.1 Timer CPU pin function (IC1)

PIN NO.	LABEL	IN/OUT	NOTE
1	GND	-	GND
2	F. AUD	IN	FRONT AUDIO INPUT:H
3	F. VID	IN	FRONT VIDEO INPUT:H
4	SEP	IN	FRONT SEP(S) INPUT:H
5	D OUT	OUT	SERIAL DATA OUTPUT
6	D IN	IN	SERIAL DATA INPUT
7	IC	-	NC
8	CLK	IN	DATA TRANSFER CLOCK
9	STB	OUT	CLOCK OUTPUT PERMISSION
10	KEY0	IN	KEY SCAN DATA INPUT
11	KEY1	IN	
12	KEY2	IN	
13	KEY3	IN	
14	VDD	-	UNSW 5V
15	Seg1	OUT	SEGMENT DISPLAY DATA/KEY SCAN PULSE OUTPUT
16	Seg2	OUT	
17	Seg3	OUT	
18	Seg4	OUT	
19	Seg5	OUT	
20	Seg6	OUT	
21	Seg7	OUT	SEGMENT DISPLAY DATA OUTPUT
22	Seg8	OUT	
23	Seg9	OUT	
24	Seg10	OUT	
25	Seg11	OUT	
26	Seg12	OUT	
27	Seg13	OUT	
28	Seg14	OUT	
29	Seg15	OUT	
30	Seg16	OUT	
31	NC	-	NC
32	NC	-	NC
33	VDD	-	UNSW 5V
34	VEE	-	FDP DRIVE(-28V)
35	NC	-	NC
36	NC	-	NC
37	NC	-	NC
38	NC	-	NC
39	Grid6	OUT	COLUMN DISPLAY DATA OUTPUT(GRID CONTROL)
40	Grid5	OUT	
41	Grid4	OUT	
42	Grid3	OUT	
43	Grid2	OUT	
44	Grid1	OUT	
45	VDD	-	UNSW 5V
46	SAP	OUT	SAP LED CONTROL(ON:H)
47	STEREO	OUT	STEREO LED CONTROL(ON:H)
48	HYPER BASS	OUT	HYPER BASS LED CONTROL(ON:H)
49	FAMILY MESSAGE	OUT	FAMILY MESSAGE LED CONTROL(ON:H)
50	POWER	OUT	POWER LED CONTROL(ON:H)
51	VSS	OUT	GND
52	OSC	-	NOT USED

Table 6-1 TIMER CPU pin function

6.2 SYSCON CIRCUIT

6.2.1 Syscon CPU pin function (IC601) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	S. CURVE	IN	TUNING CHECK
2	SAP/STEREO	IN	LED CONTROL
3	DET. S	IN	S-VHS PB:H, VHS PB:L
4	AVGFM	IN	AUTO TRACKING DATA(AVERAGE VOLTAGE OF PB FM LEVEL) INPUT
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	MAIN SYSTEM CLOCK(10MHz)
8	X1	-	MAIN SYSTEM CLOCK(10MHz)
9	VSS	-	GND
10	OSC1	IN	SUB SYSTEM CLOCK
11	OSC2	OUT	SUB SYSTEM CLOCK
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	PLL LOCK	IN	TUNING CHECK DATA
15	SYNC DET	IN	SYNC DETECT(NO SYNC:H)
16	D. MUTE	OUT	DEMOD MUTE CONTROL
17	PLL DATA	OUT	TUNING CONTROL DATA
18	S-CLK	OUT	SERIAL DATA CLOCK OUTPUT
19	EXP DATA	OUT	ABIT EXP DATA FOR CH PLS CONTROL
20	EXP CLK	OUT	DATA TRANSFER CLOCK
21	CSB	OUT	ON SCREEN DATA PERMISSION
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	OS RESET	OUT	ON SCREEN RESET
24	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
25	HRECST	OUT	HiFi REC START:L
26	N. D	IN	NORMAL AUDIO DETECT(NORMAL AUDIO:L)
27	AMUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
28	AI DATA	OUT	AUDIO CONTROL DATA OUTPUT
29	AI CLK	OUT	AUDIO DATA TRANSFER CLOCK
30	CAPREV	OUT	CAPSTAN MOTOR CONTROL(FED:H/REV:L)
31	H SEL	OUT	HEAD SELECT CONTROL(SP:L/LP:M/EP:H)
32	A/M/S	OUT	PRE/REC CIRCUIT CONTROL(AUTO:M/MANUAL:H/S&S:L)
33	MECHA CLK	OUT	MECHANISM MODE DATA TRANSFER CLOCK
34	RECST/TEST	OUT	REC START:H
35	MECHA DATA	OUT	MECHANISM MODE CONTROL DATA OURPUT
36	LCM2	OUT	LOADING MOTOR DRIVE(2)
37	REC	OUT	REC:H
38	LCM1	OUT	LOADING MOTOR DRIVE(1)
39	MCE	OUT	MEMORY IC CHIP ENABLE
40	M-DATA	IN/OUT	MEMORY IC DATA

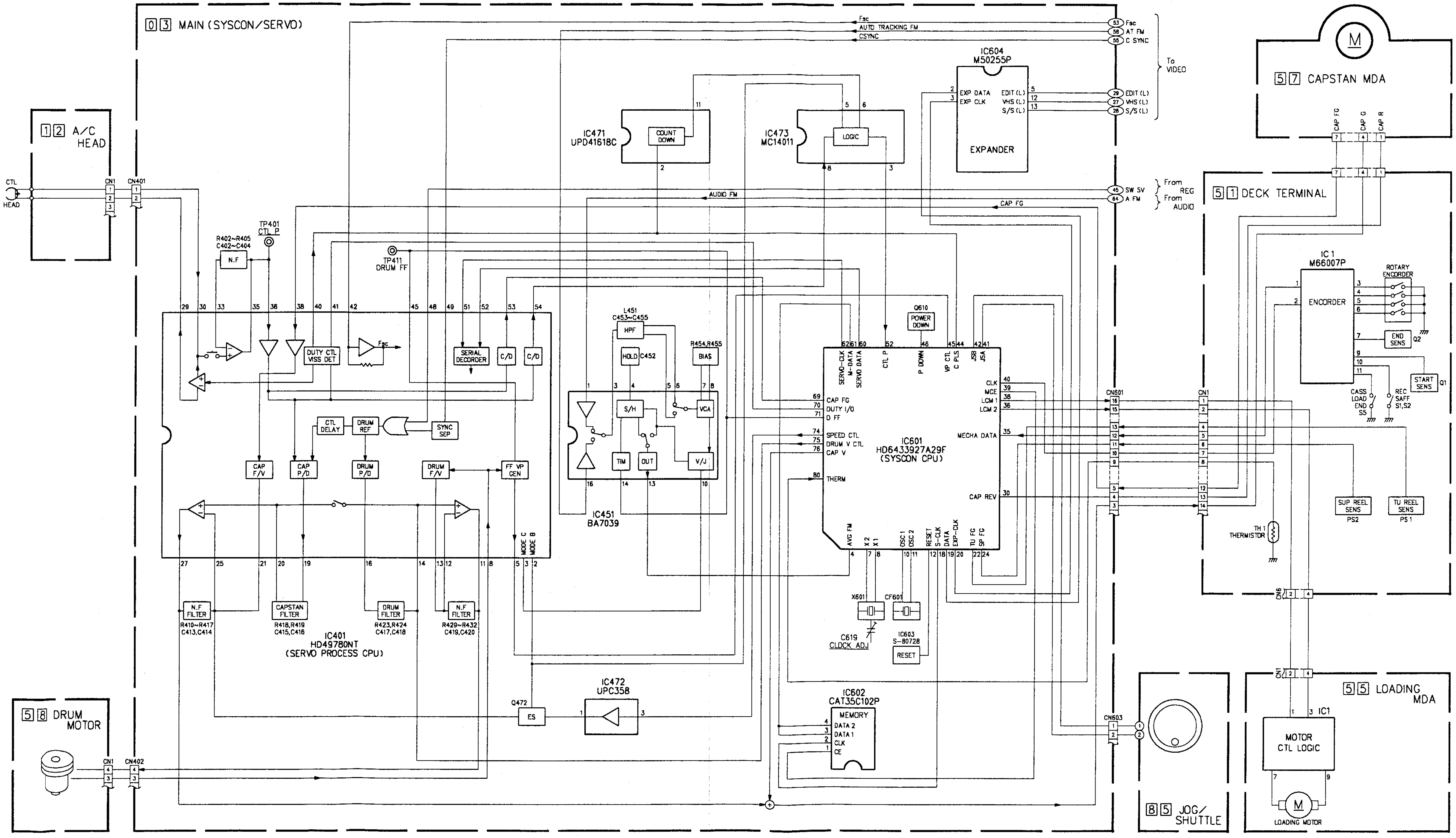
Table 6-2-1-A SYSCON CPU pin function (1/2)

6.2.2 Syscon CPU pin function (IC601) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	JSA	IN	JOG DIAL PULSE INPUT
42	JSB	IN	JOG DIAL PULSE INPUT
43	STL	IN	SHUTTLE SWITCH
44	CTL CLOCK 2	IN	INDEX CONTROL
45	VPCTL	OUT	V. PULSE ADDITION TIMING CONTROL
46	P DOWN	IN	POWER DOWN DETECT(POWER DOWN H - L)
47	STB	OUT	CLOCK OUTPUT PERMISSION
48	RAEOUT	OUT	REMOTE PAUSE CONTROL OUTPUT
49	STATUS	OUT	STATUS
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	COMPU	IN	AV COMPULINK MODE
52	CTL C/D	IN	CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET)
53	P. CTL	OUT	POWER CONTROL(POWER ON:H)
54	LP	OUT	LP MODE:L
55	EE	OUT	EE MODE:L
56	PMUTE	OUT	PICTURE MUTE CONTROL(MUTE ON:L)
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN /FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	SERVO DATA	OUT	SERVO IC CONTROL DATA
61	FEHCTL	OUT	FLYING ERASE HEAD CONTROL(FE ON:H)
62	SERVO CLK	OUT	DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	R. PAUSE	IN	REMOTE PAUSE CONTROL(PAUSE ON:L)
65	-	-	GND
66	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO:L/MECHACON:H)
67	CTL CLOCK 1	IN/OUT	INDEX CONTROL
68	PAUSE	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
71	D. FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	-	-	GND
74	SPEED CTL V	OUT	TAPE SPEED CTL VOLTAGE OUTPUT
75	DRUM V	OUT	DRUM MOTOR CONTROL
76	CAP V	OUT	CAPSTAN MOTOR CONTROL
77	PROTECT	IN	POWER PROTECT DETECT(POWER OFF:L)
78	A. LEVEL L	IN	AUDIO INDICATOR LEVEL INPUT(Lch)
79	A. LEVEL R	IN	AUDIO INDICATOR LEVEL INPUT(Rch)
80	THERM	IN	THERMIC CORRECTION(SLOW CAPSTAN BRAKE CTL)

Table 6-2-1-B SYSCON CPU pin function (2/2)

6.2.3 SYSCON SERVO BLOCK DIAGRAM


03 MAIN (SYSCON/SERVO)
12 A/C HEAD
CTL
HEAD
CN1
CN401
R402~R405
C402~C404
N.F
TP401
CTL P
TP411
DRUM FF
DUTY CTL
VISS DET
Fsc
SERIAL DECORDER
C/D
CTL DELAY
DRUM REF
SYNC SEP
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
MODE C
MODE B
N.F FILTER
R410~R417
C413,C414
CAPSTAN FILTER
R418,R419
C415,C416
DRUM FILTER
R423,R424
C417,C418
N.F FILTER
R429~R432
C419,C420
IC401
HD49780NT
(SERVO PROCESS CPU)
58 DRUM MOTOR
CN402
IC471
UPD41618C
COUNT DOWN
IC473
MC14011
LOGIC
IC604
M50255P
EXP DATA
EXP CLK
EDIT (L)
VHS (L)
S/S (L)
EXPANDER
Fsc
AUTO TRACKING FM
CSYNC
Fsc
AT FM
C SYNC
To VIDEO
EDIT (L)
VHS (L)
S/S (L)
AUDIO FM
CAP FG
SW 5V
A FM
From REG
From AUDIO
L451
C453~C455
HPF
HOLD
C452
R454,R455
BIAS
S/H
VCA
TIM
OUT
V/J
IC451
BA7039
Q610
POWER DOWN
SERVO-CLK
M-DATA
SERVO DATA
CTL P
P DOWN
VP CTL
C PLS
JSB
JSA
CAP FG
DUTY I/O
D FF
SPEED CTL
DRUM V CTL
CAP V
THERM
CLK
MCE
LCM 1
LCM 2
MECHA DATA
CAP REV
IC601
HD6433927A29F
(SYSCON CPU)
AVG FM
X 2
X 1
OSC 1
OSC 2
RESET
S-CLK
DATA
EXP-CLK
TU FG
SP FG
X601
CF601
C619
CLOCK ADJ
IC603
S-80728
RESET
IC602
CAT35C102P
MEMORY
DATA 2
DATA 1
CLK
CE
IC472
UPC358
Q472
ES
CN601
CN603
57 CAPSTAN MDA
CAP FG
CAP G
CAP R
51 DECK TERMINAL
IC 1
M66007P
ENCORDER
ROTARY ENCORDER
END SENS
Q2
START SENS
Q1
CASS LOAD END S5
REC SAFF S1,S2
SUP REEL SENS PS2
TU REEL SENS PS1
TH 1
THERMISTOR
CN6
85 JOG/SHUTTLE
55 LOADING MDA
IC1
MOTOR CTL LOGIC
LOADING MOTOR